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PRESIDENTIAL ADDRESS TO THE ONTARIO HEALTH OFFICERS ASSOCIATION

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INCIDENCE OF TRICHINOSIS IN TORONTO

E. KUITUNEN-EKBAUM

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Tenth
Christmas Meeting
of the
Laboratory Section

Royal York Hotel, Toronto

Wednesday and Thursday, December 17-18

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THREE GENERAL SESSIONS

for the presentation of papers in all fields of bacteriology: medical, dairy, food, water, and sewage; and in immunology, parasitology, pathology, and chemistry in relation to public health.

Wednesday, 9.30 a.m.

Thursday, 9.15 a.m. and 2.30 p.m.

PROGRAM OF DEMONSTRATIONS

Members of health departments, laboratories, university departments, and research institutes are cordially invited to take part in the program of demonstrations which will be held in the School of Hygiene, University of Toronto.

Wednesday, 2.30 p.m.

Titles of papers and demonstrations should be submitted to the Secretary of the Section, Dr. Ronald Hare, as soon as possible.

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CANADIAN PUBLIC HEALTH ASSOCIATION
111 AVENUE ROAD, TORONTO

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NOVEMBER, 1941

Presidential Address to the Ontario Health Officers Association*

F. LADOUCEUR, M.D.

Medical Officer of Health, Casselman, Ontario

WE are at war, deeply engaged in war. If at any time public health is of vital importance to the country, it is now. Our duties, as individuals and as members of this association, are clear: although the future be clouded by anxiety and strain, our chief thought, our chief aim, must be to bring together all the resources of our great country and to make all necessary sacrifices until, to quote Mr. Churchill, "the curse of Hitler is removed from the world."

Before proceeding with the study of our own immediate war problems, and before taking a glance at the public health problems of the occupied countries of Western Europe, may I be permitted to take this occasion to express my thanks for the great honour you paid me in electing me to the office of President. I should like also to express my gratitude to the members of the staff of the Provincial Department of Health for their co-operation at all times, and particularly in the preparation of the program of this, the twenty-seventh annual conference of our association. It is my privilege to welcome very cordially the members of both the Ontario Branch of the Canadian Institute of Sanitary Inspectors and the Veterinarians Association. These associations find a logical home with the parent health officers association: the three have the one goal, the health of the people. The combined meetings favour the exchange of ideas and give the health officers the opportunity of acquiring a more intimate knowledge of the inspection services and of their importance.

Our local war problems are many. Vacancies occur in increasing number and it is a frequent source of worry for the Department of Health to find

*Presented at the twenty-seventh annual conference of the Ontario Health Officers Association, held in Toronto, May 22 and 23, 1941.

physicians with the required background in public health. Thirty-seven have answered the call to help the country with the various military forces, and thirteen have retired. Seventeen have died, after giving their best to the cause of public health. May I be permitted to name three in particular—Banting, FitzGerald, and McCullough?

Dr. J. W. S. McCullough devoted fifty years to public health work in Ontario. To him we owe the organization of the Provincial Department of Health, the free distribution of diphtheria antitoxin and other biological products, the provision of travelling chest clinics to combat tuberculosis, enlargement of the public health laboratories, and the foundation of the Ontario Health Officers Association. Before he retired in 1935 he saw his life ambition realized: the Ontario Department of Health stands in the front rank amongst government health organizations.

In Dr. John Gerald FitzGerald, Canada and the scientific world at large recognized an international authority in the fields of bacteriology and hygiene. His chief ambition he was able to realize in his lifetime: the foundation and development of the Connaught Laboratories and School of Hygiene in the University of Toronto. His was the first laboratory in Canada to make available, at the lowest prices, essential public health biological products of the highest quality. He was quiet, genial, tactful; and had a far-sighted, constructive imagination, coupled with fine judgment and unusual organizing ability.

In the death of Major Sir Frederick Banting, discoverer of Insulin, the world lost the greatest Canadian of his time and one of the greatest benefactors of mankind. Fame and success did not change him: he remained undisturbed, simple and friendly; he truly loved his fellow men and was loved in return. He was a charming companion, and yet he was doggedly obstinate in following an idea; the etiology of cancer, silicosis, medical aviation, etc., were his favourite subjects. A born scientist, this great man, always very human, was a victim of the vicissitudes of war. The inspiration of his memory adds great strength to the impetus of the cause of research.

The Association, may I add, wishes to express a deep sense of loss in their deaths, and to extend profound sympathy to the members of their families.

COMMUNICABLE DISEASES

Last year I likened the strength, the preparedness, the general ability of our Department of Health in combating communicable diseases, with the ready and able assistance of every member of the association, to the then much talked of Maginot Line, reputedly the greatest stronghold of defence ever built. Much has happened since; nevertheless I cannot forget the comparison entirely. We may be prepared to combat the invasion of communicable diseases but vigilance must be constant for fear they may enter by the back door, just as the Hitlerites entered France.

Everyone owes it as a duty to the State to maintain good health; this is a personal and an individual responsibility. In this he derives untold material

assistance from the Department of Health, with all its facilities; and from the active participation of the whole army of medical officers of health, coupled with the benevolent and often very efficient assistance of various agencies.

Diphtheria is being wiped out before the generalized advance of toxoid immunization. Immunization has become so readily accessible and so general that, to use the words of Dr. Eastabrooks of Colgate University, "Diphtheria becomes an insult to science." Let each of us see to it, by insuring constant and complete immunization, that we do not contribute to the insult. And no immunization program is complete and one hundred per cent efficient unless it includes the preschool child. Is it possible, one may ask, to have an almost perfect solution to the problem? For the answer let us turn to Brantford, a city of 30,000 population, which in November 1940 completed its tenth year without a case of diphtheria. And what of Toronto, which in the same year established a record of not one case of the disease, in spite of the many complicating problems of a large moving population? Diphtheria in many countries remains the most important fatal disease at school ages.

Smallpox, to quote from Dr. FitzGerald's "Practice of Preventive Medicine", was once "a national scourge; today it is the perquisite of those who prefer to have it." And yet how many walking the streets of our own municipalities are potential factors of an outbreak that may become all the more serious as there is less protection?

Tuberculosis has been the object of many concerted attacks in these last years; it was made to draw back its legions and is now seventh amongst the sombre powers of death. But progress is now slower. More will have to be done. There seems to be quite an open field for the progress of education, if we are to judge from an American survey done by Dr. Gallup, Director of the American Institute of Public Opinion, in which only 18 per cent were able to give the correct answer that tuberculosis is caused by a germ. Some countries have the more or less black reputation of possessing many more tuberculosis cases than others; would conditions be as bad, it was often asked, had there been more supervision through a more wide-spread distribution of sanatoria? The provision of sanatorium accommodation is still a problem and a cause of concern to many a medical officer of health when he has to send his patients to a distant part of the province, having not only to fight the disease but also the patient and his family, who are, by nature or by love, reluctant to be separated. With easier access to sanatoria and with greater popular education, it will become easier to control the ignorant and careless carrier of tuberculosis and thus smother this veritable ambulating Petri dish, which seems to have for motto the French saying *Je sème à tout vent*—I sow in all kinds of winds—as he goes about his distribution of bacteria every time he coughs or sneezes. I note with satisfaction that our legislators, conscious of the problem of tuberculosis, have put teeth in the law relating to the tuberculosis rebel.

This year German measles were prevalent to an annoying degree. Many young adults presented a rather unusual form, not unlike a mild scarlatinal infection.

One disease to give a genuine headache—it is symptomatic—and with which most provinces were faced, is epidemic meningitis. The war has aggravated the problem. Epidemic meningitis seems to have the habit of reappearing with the mobilization of troops. Could there be devised means of destroying the lines of communication? It is surprising to learn, however, that although from November to March there were twice as many cases of epidemic meningitis as ever before, there were few cases in the army. In one camp of 5,000 soldiers only one case developed, while in another part of the city three cases broke out on the same street—and this without any possible known contact. The contrary was expected, since large masses of population, coming from all parts of the country, bring together many rural youths without immunity to urban communicable diseases and, consequently, innocent and easy victims for the spread of disease. There seems to be much to do before we can safely say of the microbial invasions: "They shall not pass."

Psittacosis, a disease with which we have had little or no acquaintance, was promptly dealt with by the Department of Health. Great credit is due to Dr. A. L. MacNabb, Director of the Division of Laboratories, for so quickly establishing a special laboratory in the Queen Street Mental Hospital, making possible the scientific control of the disease.

In times of crisis, youth is subject to peculiar dangers. In large cities the school children are surrounded by many protective agencies, but what of the rural school children? Is the rural school to be retained on the map of the public health realm by the single official link of an annual sanitary inspection? The safety of the lives of children should not be contingent upon their living in a city or large town. Must the teaching of hygiene in rural schools be left entirely to the school teacher? Of a rural medical health officer who had just given a short talk on mental hygiene an experienced school teacher asked the very pertinent question: "Why don't you come every month? It would help so much."

It is a matter of no uncertainty that the rural medical officer of health can exert his influence most favourably in fostering hygiene in his schools, not only by indirectly helping elect or choose as school trustees men who are public-health minded, but also in the actual teaching of hygiene, and in this derive much personal satisfaction. Interesting topics for a short lecture might include dental caries, defective eyesight (14 per cent of 10,000 recruits were reported to be afflicted with it), poor posture, and mental hygiene.

Mental Hygiene

Speaking of mental hygiene amongst school children, I cannot dissociate it from the ever-increasing habit of reading "comics". I wish to pause here for a moment and draw your attention to what may become a major problem. I do not mean to infer that comic strips should be banned entirely; far from it, because according to the French saying: *Un Saint triste est toujours un triste Saint*—a sad saint always makes a sad thing of a saint. And all of us know people who go about like Peter, "with the keys of heaven or hell in their pocket, or their shopping bag!"

Worse than the comic strips are the "comic magazines" which have reached such a stage that, to quote the *Parents Magazine*, old-time novels in which an occasional redskin bit the dust were classic literature compared with this sadistic drivel of graphic insanity. A leading psychiatrist is inclined to minimize the evil effects of the comics where the child is reared in a reasonably good atmosphere and care is exercised to ensure that the child's reading is not limited to them, and where, of course, other good influences are at work; but if he is allowed to run more or less at large, without much supervision, considerable ill-effect may result. So often, says one of our leading psychiatrists, this reading suggests to the child a fantastic and bizarre world, inhabited by humans and monsters of a most unusual type: is this not very similar to that which occurs in the schizophrenic? Again, the literary editor of a Chicago newspaper said of these comic periodicals: "They are a national disgrace, a poisonous mushroom growth of the last two years. At first we imagined (as do most parents) that they were no worse than the 'funnies' in the newspapers. But examination of 108 periodicals on the stands shocked us. At least 70 per cent of these were of a nature no respectable newspapers would think of accepting—and between 12 and 15 million copies are sold to American children each month. They contribute a cultural slaughter of the innocents."

THE RESPONSIBILITIES AND REMUNERATION OF THE MEDICAL OFFICER

Does all this mean that more should be added to the duties of the generally underpaid medical officer of health? You will recall the experiment being carried on in the united counties of Glengarry, Stormont and Dundas, where the health unit is in its second year of operation; in those three counties twenty-one medical officers were replaced by one full-time man and three part-time men. It would not be too pessimistic to see the "writing on the wall" for a number of us, should health units become as general here as they are in other provinces. In the meantime we carry on with increased ardor. "Noblesse oblige"; the man with the noble sentiments (and the doctor seems to be included in this class) has extra obligations. So can the ever-vigilant medical officer assume more duties? Well known are his capacity for work and his devotion to duty. Keeping a vigilant eye over his community, he is entrusted with functions replete with responsibilities. That he should receive financial compensation in just proportion is only fair—all the more so since the requirements have been multiplied in these last years. In 1925 Dr. McCullough said: "There are upwards of nine hundred local boards of health in Ontario; in eight of these, including the principal cities, can there be said to be efficient services." He also said: "Public health can be sold"; and a few years later he wrote an article entitled "Public Health Progress in Ontario." Public health *can* be sold and thereby bring increased returns. It can be sold all the more easily if, through various influential agencies, the board of health has been made to consist of men with a public health background. Just as insurance agents sell insurance, by explaining how a larger premium will buy a larger policy, a greater amount

of protection—or insurance, so the local board of health, by paying a larger premium (in this case, the salary of the medical officer of health), can buy a much greater amount of protection for the life of the public. A man with a yearly salary of \$50.00 cannot afford to spend as much time on health problems as one with a salary of \$300.00. And this protection of the public health will demand more work with increased war and post-war problems. The few figures presently available from the military medical headquarters seem to forecast many such problems. There is no reason why only 30 per cent of the prime of our youth should be classed as "A" when 90 to 95 per cent of them should be in better physical condition. Our educational system, as regards hygiene, shows ample room for improvement.

CONDITIONS IN THE OCCUPIED COUNTRIES OF WESTERN EUROPE

Through the co-operation of the Ambassadors and Consul-Generals at Washington, I have been permitted, on the behalf of our association, to receive brief surveys of health conditions in the occupied countries of Western Europe. With such information before us, we appreciate more the tremendous opportunity which we have to maintain and improve the health of our people.

NORWAY

From the Royal Norwegian Consulate General, Dr. Karl Evang writes:

"As Surgeon General of Public Health, I had the opportunity of following things at first hand during the German-Norwegian war from April 9th till June 7th, 1941, and I am happy to report that the health condition of the population was excellent during the warfare itself. We had some difficulties during that time, due to the lack of certain drugs, and we also had to face some problems arising from the fact that the enemy destroyed some of our larger hospitals (for example those at Molde and Bod), on which the whole surrounding population was more or less dependent for proper medical treatment.

"Some difficulties also arose because so many of our district physicians (a combination of a public health officer and private practitioner) had been mobilized. As a result, some of the remaining district physicians had to cover vast areas. These difficulties, however, were all overcome, partly by the help of our great ally, Great Britain (medical supplies), partly by gifts from Sweden (drugs), and also by the self-sacrifice and ability of our Norwegian physicians.

"More difficult to solve was the problem of finding shelter for the homeless families, refugees through the reckless German destruction of many open civilian towns in Norway.

"After the German occupation, viz. after June 7th, 1941, health conditions have largely been good. The effective public health organization of the country is, as a whole, intact, and carries on its work. Occupied Norway has had no serious epidemics. Unfortunately, however, a wide-spread epizootic of mouth and foot disease among the cattle broke out.

"There is every reason to believe that there will be an increasing morbidity

and mortality rate from tuberculosis, as a result of increasing possibilities for contamination during the war, shortage of food stuffs and fuel for heating the houses during the occupation. But, as you will realize, it is too early as yet to make any final statements in this respect.

"There is no lack of medical personnel. On the other hand, there is lack of certain drugs, biological materials and other forms of medical supplies. Under an agreement reached with the British Government, the first large shipment has just been prepared as a gift for Norway from the American and Canadian relief organizations.

"By far the most serious public health problem in Norway during the German occupation is the scarcity of food-stuffs. Norway imports under normal circumstances 75 per cent grain needed for human consumption, 100 per cent of sugar and syrup, and 33 per cent of fruit, and could, therefore, under no circumstances feed its own population, even if the Germans had not consumed any of the country's productions, or taken any of the food-stuffs in stock.

"Since the German occupation there has been an increasing scarcity. Meat has disappeared from the market in most places. The same applies to eggs, fruit, and most vegetables. There is, in my opinion, no doubt that a large part of the population in Norway is already far below the margin of safety, and that, therefore, a lowering in the general resistance to diseases must be expected. On the other hand, there has been until now no real starvation. Norwegian relief organizations in Norway have started to move children from parts of the country where the food situation is most serious (especially in the north).

"It is to be remembered that shortly after the Germans had occupied the whole country it was forbidden to use coke, coal, and oil for heating the houses, and that the rationing of clothes and foot-wear is very strict."

DENMARK

The Royal Danish Legation, Washington, reported on May 8th that:

"The Legation is only scarcely informed with regard to the health situation in Denmark. It seems that the flu epidemic, which is to be expected every year about February and March, has not been more serious this year than usually. There have not so far been any other serious epidemics but it seems that a number of skin diseases have increased rapidly. An ailment known as psora was practically unknown in Denmark up to the invasion, but in one week in January this year there seem to have been about 140 new cases in Copenhagen alone, which is attributed to lack of soap. Each person gets only one cake of soap per month, and as there is a very great lack of fuel in Denmark, hot-water baths have become very rare. It seems, too, that the fatal cases of pneumonia and other respirational diseases have increased, which is only natural as this winter has been exceptionally cold, and the fuel rations have been absolutely insufficient. People have been able to keep only one room in their apartments heated, and only to a very moderate degree.

"Although most foods, like a great number of other commodities in Denmark; are rationed, there has not been any real serious food shortage so far."

The Legation also supplied a reprint of an article entitled "Invaded Denmark" which was published in "The Commercial & Financial Chronicle" of March 8, 1941. This article gives a general impression of conditions in Denmark as they developed until about January of this year. Since then they have of course deteriorated even more. Food, fuel, gas, electricity and clothing are rationed to such an extent that wool and cotton garments and underthings are unobtainable. It is a penal offence punishable by death to leave the country without a German Permit. The shortage of railroad rolling stock is also serious, due to the difficulty of securing the return of freight cars sent to Germany with goods. Last December 1st Danish imports from Germany rose 50 per cent in value and exports increased 150 per cent. It was estimated that 2¼ million sows, 3 million hogs, and 15 million hens would have to be reduced by 50 per cent to match the fodder supply, and the process seems well under way.

HOLLAND

The following summary of health conditions in Holland since the invasion was supplied by the Netherlands Information Bureau in New York, on May 13, 1941.

"Epidemics. The invasion brought no serious epidemics. The only threatening situation was in Rotterdam. During the bombing of the city, the main water supply building was hit by a bomb and for many weeks the water supply of Rotterdam was out of order. Instructions were given to cook all drinking water and water was transported in trucks. No typhoid fever epidemics occurred. The number of German soldiers killed only in crossing rivers has been extremely high and may be estimated at 30,000. During the whole summer of 1940 the military authorities have forbidden the use of these rivers as swimming grounds. Civilian authorities of many cities have ordered compulsory inoculation of the whole population against typhoid fever.

"The Germans had an extensive, well-organized service to remove the dead and wounded from the battlefield. According to reliable sources they have burned the greater number of the bodies in steel furnaces in the 'Ruhrgebiet'. Later in the summer they burned the bodies of the soldiers killed in invasion rehearsals on the Dutch coast in the steel furnaces of Ymuiden.

"Alimentation. Food conditions are not too favourable. During 1940 milk and potatoes were free from rationing. The milk, however, was depleted of all fat. Now the distribution of both is also regimented. Vegetables are still free and may be available in abundance as Holland was an exporting country of vegetables. Four pounds of white bread or five pounds of brown bread are available per person per week. There is a great shortage of meat, eggs, soap, coffee, tea and vegetable oils.

"Under the circumstances, health conditions in general can be considered fairly good.

"Medical Personnel. During the invasion quite a number were killed in the bombing of Rotterdam. The largest hospital in town was squarely hit and the majority of the staff perished. In 1938 Holland had 6,123 male and 439

women doctors. The relatively high percentage of doctors, nearly one doctor for every 1,000 inhabitants, was large enough to cope with the situation created by the ousting of Jewish doctors. Amsterdam had the greatest Jewish population and also the greatest number of Jewish doctors. The Amsterdam chapter of the Netherlands Institute of Medicine unanimously voted that Aryan doctors should take over the patients of Jewish doctors for the duration of the war and refund the income from these patients to the Jewish doctors. The same procedure has been followed in other cities.

"German Measures. The Germans have interfered little with the Dutch medical services. Despite the extreme hostility of the population they still try to win over part of the population by interfering as little as possible with their daily life. As high medical standards already existed in Holland, there was no direct need to interfere. The mortality rate per 1,000 inhabitants over the last nine years was:

	Men	Women	Total
1931.....	9.73	9.59	9.66
1932.....	9.27	9.16	9.22
1933.....	9.01	8.94	8.98
1934.....	8.65	8.45	8.55
1935.....	8.91	8.71	8.81
1936.....	8.75	8.62	8.68
1937.....	8.78	8.64	8.71
1938.....	8.51	8.21	8.35

The percentage of stillborn infants over the last ten years averaged from 2.45 to 2.15. In the same period the infant mortality decreased from 5 to 3.4 per cent. The mortality per 10,000 inhabitants in 1939 for different epidemic diseases was: typhoid fever, 0.04; smallpox, 0; measles, 0.05; scarlet fever, 0.03; diphtheria, 0.09; influenza, 2.18; tuberculosis (all forms), 4.10; malaria, 0; and other epidemic or parasitic diseases, 1.22. The birth rate per 1,000 inhabitants was: 1926-30, 23.2; 1931-35, 21.2; 1937, 19.8; 1938, 20.5; and 1939, 20.6."

BELGIUM

The Belgian Legation in Ottawa supplied the following information, which was received by cablegram by the Legation in New York on May 14th from an American relief organization working in Belgium.

"The Medical Committee recently reported great underfeeding, as the very low ration of about 1,300 calories is practically reduced to about 1,000 for the city population. The scarcity of a reasonable quantity of bread, and the lack of potatoes, fats, meat and feculents are the main reasons for this deficiency. Numerous cases of oedema, caused by hunger, are observed in the hospitals. Enquiry revealed that the daily ration of the majority of these patients was 225 grams of bread, five grams of margarine, and few vegetables. Expectant mothers, children and adolescents are still worse off, especially because of the acute scarcity of milk and the lack of meat. A specific survey respecting children attending school indicates that 63 per cent get no or scarcely any breakfast, 33.5 per cent an inadequate noonday meal, and 56 per cent an insufficient supper. Thirty per cent of the children show a decrease in growth and weight. Thirty-

one point three per cent of the children were declared to be weak, after medical examination. The very marked deficiency of proteins and fats for adolescents during the period of growth reveals a most dangerous situation for the future. The shortage of food for the entire population has become more severe during recent months. Bread composed of rye, potato, flour and bran is now rationed, 225 grams daily as against 300 grams of better quality bread during the World War, and average normal consumption of 450. The present scarce ration can only be maintained if sixty thousand tons are imported monthly. Are without encouraging news relative to Russian wheat. Official statistics show that since November potatoes distributed average only three kilograms per head per month. The daily meat ration, inclusive of bones, is 35 grams but since February the entire population has received practically no meat, whereas it normally consumed three hundred and forty thousand tons, of which only one hundred and twelve thousand tons can be made available with difficulty now. Further, Belgium consumed 80,000 tons of fish yearly, whereas none is available now. The yearly egg consumption is 211 per capita. The disappearance of poultry is mainly due to lack of feeding possibility. This produced a sharp scarcity of eggs, especially in cities. The daily ration of fats and grease is fifteen grams, of which during the last five months only eight to ten have been available and distributed. Stocks for manufacturing margarine will be exhausted next November, the consequences of which can hardly be foreseen. Only children up to fourteen, expectant mothers, and people above seventy receive on an average one-third litre of milk daily. The rest of the population, inclusive of patients and convalescents, receive limited quantities of skimmed milk. Cattle and poultry foodstuffs which were entirely imported are completely lacking, which will in the future severely complicate a problem already grave."

FRANCE

And what of France, the very unfortunate France of which only time will tell how many and how finely pointed daggers were held against her throat by a ruthless aggressor, an arrogant conqueror, and a heartless dominator.

The information is scant. Professor Carrell and his colleagues from the Rockefeller Institute for Medical Research are still in France studying the effects of underfeeding. Here are some facts:

1. In the occupied zone there was a very severe epidemic of dysentery, both among soldiers and civilians.
2. In the neighbourhood of Marseilles the classical signs of vitamin A and C deficiencies were noticed.
3. There was a great fear of a severe epidemic of typhus spreading from Spain to France, but fortunately it did not cross the Pyrenees.
4. Numerous and various pulmonary affections (bronchitis and pneumonia) were found in the concentration camps (Jews and strangers).
5. The Pasteur Institute found it very difficult to carry on, through lack of chemical products and animals, and also on account of reduced personnel

due to the emigration of scientists, foreigners, Jews and others having had some political activities.

The French population was given cards of alimentation with tickets which must be presented in the restaurants or the stores. The rations are as follows: 300 grams of bread per day, 360 grams of meat and bone for the week, and 50 grams of cheese for the week. Pregnant women are entitled to a little more.

In conclusion, may I say that it is more than a striking coincidence that the President of the Ontario Health Officers Association should be a French-Canadian in times like these. At this very moment the Press reports such unfavourable, such unbelievable news, as comes from the French Government of Vichy. We French-Canadians born in Ontario, and also those who were born in Quebec, loved France very dearly—not the France of the politicians but *la France* of the French people. We all have something in our souls of the motto of the Province of Quebec: *Je me souviens* (I remember); but, I must admit, *bon sang ne saurait mentir*—noble blood cannot lie. If we loved France dearly, we love England more dearly. No, *bon sang ne saurait mentir*. When war broke out, it was a French-Canadian unit, *le Regiment de Maisonneuve* from Montreal, which first completed its effective. And, may I add, amongst English-speaking regiments and even under the Scottish kilt (for the French-Canadian and the Scotch meet on many common grounds)—even under the Scottish kilt you may find French-Canadian youths.

Out of the first Great War many benefits have providentially accrued to humanity. In this country, and perhaps more conspicuously so in this Province, one of the most beneficial gains to be registered as an outcome of the Great War is a better understanding between the various racial and religious elements that constitute Canadian citizenship; a closer Canadian unit; an abatement of prejudice and racism (which is just the opposite to the dictatorship's Nazism); a greater tolerance; a heartier co-operation in a common effort towards Canadian welfare and prosperity: in short, a clearer conception and realization of national unity."

We, as health officers, entrusted with the welfare of generations to come, in close contact with school teachers and children, should make it our duty to help foster such a movement as opportunity offers. May I now borrow the words of a French-Canadian physician as he completed his lecture on the eve of the 24th of May—of Empire Day, that feast of one world-wide empire with its very many races, creeds and tongues; the same 24th of May which also marks for French Canada the memorable exploit of Dollard DeOrmeaux who, in 1660, at the Long Sault Rapids, avoided destruction at the hands of the Iroquois, just as England is presently engaged in saving the democracies of the world from the savage attack of the Hitlerites and their satellites.

"French children," said the professor, "we have endeavoured to teach you, in our course of hygiene, how best to foster the physical faculties with which God has endowed your bodies: how to secure stronger muscles and steadier nerves. You must not think that this knowledge is imparted so that each one may

improve his own self, in view of a greater enjoyment of life. That would be a narrow and selfish aim. You are considered as a part of an environment which must not be exposed to danger, through neglect of your own health and hygiene precautions; and especially are you looked upon as contributors to generations to come—whose health and well-being depend upon your health and well-being. And remember that what you, French-Canadian children, are doing here, thousands and thousands of French and English children are doing in other schools. Remember that French-speaking and English-speaking citizens form only ONE nation, the Canadian,—only ONE citizenship, the Canadian; that we owe one another what we owe our common country, sincere and sympathetic co-operation.

“Go forth determined to learn what is best in the racial traits and character in your English-speaking countrymen: to give them, without *arrière-pensée* or mental reservation, the frank, the spontaneous hand of fellowship; to work by their side in an effort to make Canada (your common country) prosperous and great; to win their sympathy and affection by greater co-operation; to fight by their side against aggression; to unite in a common faith, hope and patriotism. Thus shall you serve best your country and your King.”

Meningococcus Meningitis in Ottawa, 1940-41

W. T. SHIRREFF, M.D., L. N. PEARLMAN, M.D.,

T. A. LOMER, M.D., AND DIANE CROLL, M.D.

The Strathcona Hospital and the Health Department, Ottawa, Ontario

IN November, 1940 a sharp rise in the incidence of meningococcus meningitis occurred in Ottawa. As a preliminary to the study of this outbreak, a brief review of the previous occurrence of the disease in the city was made. Data were obtained from the annual reports of the medical officer of health and the records of Strathcona Hospital from 1918. The former provided the total number of cases (including non-residents) reported to the local health department. The latter provided data on admissions to hospital.

It was observed that peaks of incidence occurred at intervals of 10 to 12 years, namely, 1918, 1929-30, and 1940-41. The mortality varied from 83 per cent in 1918 to 12 per cent in the most recent outbreak.

As the lowest mortality was recorded since the introduction of chemotherapy in 1938, the data were classified into pre-chemotherapeutic and post-chemotherapeutic periods as follows:

	Total Cases	Number of Deaths	Mortality
<i>Before Chemotherapy (1918-38):</i>			
City at large.....	75	36	48%
Hospital.....	45	17	37%
<i>After Chemotherapy (1938-41):</i>			
City at large.....	41	11	27%
Hospital.....	31	4	13%
<i>1940-41 Outbreak:</i>			
City at large.....	31	6	19%
Hospital.....	25	3	12%

Ten of the 31 cases came from the country. The cases originating in Ottawa were scattered throughout the city and its environs, with the following exceptions:

(1) Two patients came from the same street in the southern part of the city. The first was admitted January 29th and died in twenty-four hours. The other case was admitted March 18th, thirty-nine days after the neighbour had died. This case was also fatal.

(2) Two patients came from the same street in an eastern suburb of Ottawa. The first case was admitted February 12th and stayed until February 25th. The neighbouring case was diagnosed on March 28th, i.e., after an interval of thirty-one days.

(3) Two cases came from a village one hundred and thirty miles away. The first was admitted February 27th and stayed for twenty days. The second arrived on April 1st, i.e., after an interval of thirteen days.

In (1) and (2) neither neighbour knew the other. The interval of possible contact was over five weeks and four weeks respectively.

In (3) the children were cousins who, however, did not live in the same house. A grandmother was a frequent visitor to both homes.

The age incidence in the present outbreak is shown in Table I. Only seven cases were under five years of age, an unexpectedly small number.

TABLE I
MENINGOCOCCUS MENINGITIS IN OTTAWA, 1940-41
INCIDENCE ACCORDING TO AGE

Age	Total number of cases	Number of deaths
0-5 years.....	7	1
6-10 years.....	6	1
11-15 years.....	5	0
16-20 years.....	6	1
21-25 years.....	2	1
26-30 years.....	1	0
31-35 years.....	1	0
36-40 years.....	1	1
41-45 years.....	0	0
46-50 years.....	2	1
Totals.....	31	6

It is also of interest to note that, despite the proximity of military training centres, only one member of the armed forces developed the disease. There were no other cases in the camps in the immediate vicinity of Ottawa.

The incidence according to sex showed 55 per cent to be males.

Prodromal Symptoms

The following observations were made in regard to prodromal symptoms. Twenty-one cases gave a history of having had prodromal symptoms. The chief complaint was general malaise with symptoms of upper respiratory infection, or the latter symptoms only. Ten of the patients gave such a history. Headache was next, being recorded in eight patients. This symptom was sometimes transient, returning with greater severity a day or two later. Gastro-intestinal symptoms, diarrhoea with or without abdominal pain, occurred in four patients. In only one patient was the disease ushered in with convulsions. One patient had an infection of the face for two weeks previous to the onset of meningitis. Three patients had no prodromal symptoms. All were treated within twenty-four hours and none died. In the remaining cases information concerning prodromal symptoms was not available.

A rash occurred with the onset of meningeal signs in seven cases. The eruption consisted of the usual petechiae with macules or papules. One of these patients died. Eighteen patients presented no rashes. In six cases information concerning the occurrence of rash was not known.

In all the cases admitted to this hospital (except one who had received paraldehyde outside), meningitis could be diagnosed by routine physical examination, the signs being quite typical.

The bacteriological findings were as follows: From the first lumbar puncture smears of cerebrospinal fluid showed the presence of meningococci in 19 cases; 4 cases were negative; 7 cases were not known; and 1 case was not done—death occurring fifteen minutes after admission. When cultures of

cerebrospinal fluid were made, 9 cases were positive, 8 cases were negative, 6 cases were not done; and 8 cases were unknown.

From the second lumbar puncture smears of cerebrospinal fluid showed 2 cases—1 previously negative and 1 previously unknown—to be positive, and cultures of cerebrospinal fluid also showed 2 cases to be positive.

Blood cultures were made on 2 patients, both of which showed the presence of meningococci.

The influence of delay in instituting treatment, after the first definite meningeal signs or symptoms became manifest, was studied. (By delay is meant the number of days before a physician was called or the diagnosis was definitely established.) Two cases were not treated for five days; of these none died. Two cases were not treated for three days; one died. Three cases were not treated for two days; none died. Of nineteen cases treated within a day or less, four died. In five cases, data on the beginning of treatment were not available.

Treatment

The usual treatment was greatly modified by the use of drugs. Lumbar punctures were reduced to an average of 2.4 per patient. The maximum was four taps. This reduction in the number of punctures resulted from decreased use of serum intrathecally plus the rapid clinical improvement of the patients.

A combination of serum and chemotherapy was used almost exclusively. Only three cases were treated with drugs alone. The serum used was polyvalent anti-meningococcus serum prepared by the Connaught Laboratories.

The largest number of cases (13) were given serum plus sulphapyridine orally or its sodium salt intramuscularly. These patients were given approximately 1 grain per pound of body weight during twenty-four hours. As soon as a bacteriological diagnosis of meningococcus meningitis was made, the chemotherapeutic agent was changed to sulphanilamide in equivalent dosage. Of this group of thirteen patients only one died.

Six cases were treated with serum and sulphapyridine plus sodium sulphapyridine, or serum and sodium sulphapyridine only. Three deaths occurred in this group.

Five cases were given serum and sulphanilamide only. One died, two hours after admission.

Three cases were treated with sulphathiazole orally, supplemented in one case with serum, 20 cc. intravenously and 20 cc. intramuscularly, plus five gm. of sulphapyridine and 1 gm. of sodium sulphapyridine. The second case was given sulphathiazole, sulphapyridine and sulphanilamide plus 25 cc. of serum intramuscularly. The third case received sulphathiazole for several days before admission to Strathcona Hospital. Clinically, she was practically better when she arrived at our hospital. However, therapy was then changed to sodium sulphapyridine intramuscularly, without additional serum. All three cases which were given sulphathiazole recovered.

In three cases, the type of therapy was not known to us and in one case no treatment was given since the patient died fifteen minutes after admission.

With regard to the mode of serum administration, eight patients were given serum intrathecally; three of these received it by this route only. Twenty patients received serum intramuscularly; two of these were given it intrathecally as well, and four intravenously. Three patients received serum intrathecally, intravenously and intramuscularly. One of these received antitoxin also, intravenously. In all, twenty-four cases received a combined drug and serum therapy. The average amount of serum used was 36 cc. The maximum amount used was 95 cc.

Complications

Herpes occurred in two patients, bilateral deafness and cervical lymphadenitis in one, and phlebitis involving the saphenous vein in one. Convulsions were recorded in one and in another a questionable unilateral deafness developed.

Deaths

Six deaths occurred in the cases from the city. Three of these occurred in Strathcona Hospital. Summaries of the fatal cases are as follows:

Case 1:

I.C.—Female, age 21 years. Died 20½ hours after admission. She complained of nausea and vomiting followed by headache and general malaise the day before admission. A rash with typical meningelial signs was noted on arrival. The cerebrospinal fluid showed meningococci on smear and culture. Blood culture was positive.

In one and a half days, she received 120 grains of sodium sulphapyridine parenterally, 60 grains of sulphapyridine and 40 grains of sulphanilamide orally plus 20 cc. of intramuscular serum. Transient improvement was noted but she died, apparently from respiratory failure. At post-mortem examination typical findings of meningococcus meningitis were noted.

Case 2:

A.B.—Male, age 18 years. Died 22 hours after admission. Two days before admission he came home in a stuporous state. Diarrhoea was noted. He was rational at times for the next day, but the night before he came to hospital, he became unconscious and was discovered in that state early the following morning.

Smear examination of spinal fluid showed the presence of meningococci. A prominent rash was present. There were typical meningelial signs. He received 30 grains of soludagenan intramuscularly, 30 grains intravenously, 45 grains of sulphapyridine by mouth and 40 cc. of serum intramuscularly. Death occurred, associated with circulatory failure.

Case 3:

J.D.O.—Male, age 53 years. Died 24½ hours after admission. This man was an old alcoholic, who apparently had not been in his usual health for four

or five days previous to admission. He was admitted to the psychiatric ward of one of the general hospitals the day before his transfer to Strathcona Hospital. Paraldehyde was administered at the general hospital. A lumbar tap was not done till the day of his transfer. Meningococci were found on smear and culture. Physical examination was unsatisfactory since neurologic phenomena were masked by the paraldehyde. During his stay in hospital, 150 grains of sodium sulphapyridine were given intramuscularly, supplemented by 40 cc. of serum intramuscularly.

Case 4:

P.G.—Male, age 5 months. Had a "cold" for three or four days. A questionable rash was noted. He died 15 minutes after admission to a general hospital. Diagnosis was made at autopsy.

Case 5:

E.B.—Female, age 38 years. An infection of the face was present for three weeks previous to death. Complete records were not available.

Case 6:

P.H.—Female, age 8 years. Had "sore throat" for a week. She died two hours after admission to a general hospital, having received sulphanilamide previous to death. Complete records were not available.

DISCUSSION

The small number of cases does not permit of definite conclusions. Nevertheless, certain impressions are left. Since the introduction of the use of sulphonamides, mortality has been greatly reduced. The hospital figure of 13 per cent since 1938 is a decided improvement over 37 per cent in the period before sulphanilamide. This improvement was obtained following the combined use of serum and chemotherapy.

The amount of serum used was not great. In fact, one may wonder if the small amount used was of much value in the average case. This is more striking when one reads of mortality rates of less than 3 per cent in cases where chemotherapy alone was used (1, 2, 5, 10). On the other hand, in the severe cases (cases 1 and 2) one felt that perhaps more vigorous serum therapy might have been of some aid, particularly when two other clinically severe cases treated with serum administered intrathecally, intramuscularly and intravenously recovered, one completely and the other with a residual phlebitis.

As to the relative merits of the various drugs used, we were surprised to find that most of the deaths occurred in the group in whom sulphapyridine and its sodium salt had been used without other drug supplements. Although no blood levels of the drugs were determined in these cases, it is likely that sufficient concentration of the drug was present since sodium sulphapyridine had been given parenterally in all three instances. The explanation of this

apparent discrepancy in the superior efficacy of sulphapyridine in meningococcal infections as demonstrated in the laboratory (3) lies perhaps in the difference of severity of the cases or in the difference in strains of organisms (3) found in cases treated by serum and sulphapyridine alone and those treated with serum, sulphapyridine and other sulphonamides.

We were also surprised to find that the three cases treated with sulphathiazole all recovered. Certainly in two of these patients the amount of other sulphonamides used was not great enough to have brought about a cure alone. This, however, is in line with findings on sulphathiazole therapy in Great Britain and apparently contradicts the condemnation of sulphathiazole as a useful drug in meningitis.

The bacteriological diagnosis of the disease has not proved entirely satisfactory. For rapid diagnosis, cultures are too slow. As will be noted in the text of the twenty-three cases on which smears were done at the first lumbar puncture, four were negative. On the other hand, in two cases in this series in which the diagnosis of meningococcus infection was made by smear, one was said to have followed an infection of the face of two weeks' duration and in one the spinal fluid cell count dropped from the thousands to a little over a hundred in less than twenty-four hours.

One might reasonably doubt that an infection of the face, which was apparently regarded as the primary focus of the meningitis, should be due to meningococcus. Similarly, the rapid fall in cell count in the spinal fluid of the second patient may be questioned.

We have had two further examples of the inaccuracy of present methods of identifying the meningococcus from spinal fluid. In one instance, two laboratories diagnosed pneumococcus and streptococcus respectively, while a third laboratory several days later diagnosed spinal fluid from the same patient as containing meningococcus. In the second instance, a fatal case of lymphocytic choriomeningitis was originally reported as meningococcus meningitis because of the apparent demonstration of the organism on direct smear.

It may be argued that since present chemotherapeutic agents are effective against a variety of organisms, accurate bacteriology to the clinician can be regarded as of academic interest only. However, we have had difficulty in occasional cases of meningococcus meningitis in clearing the spinal fluid without the supplementary use of serum. We have also had one case (the first on whom sulphanilamide was used at Strathcona Hospital) who became clinically so bad every time sulphanilamide was administered, and in whom the spinal fluid remained turbid despite its use, that serum was resorted to, with ultimate cure of the patient.

Furthermore, in the case of fluids negative on smear or culturally equivocal, valuable time can be lost in non-meningococcal meningitis where specific sera (e.g., anti-influenzal or anti-pneumococcal) would be useful and powerful adjuncts. While it is true that these cases are in a minority, nevertheless it is conceivable that more rapid accurate bacteriological diagnosis would save lives. It has been suggested to us (4) that a precipitin test as used by Rake (8) and by Maegraith (6) would be of value. We have had no personal experience

with this. However, it seems to be a simple, rapid and efficient method of identifying epidemic cerebrospinal meningitis. It has been recommended for its rapidity by Topley and Wilson (8). With our very limited material, further evaluation of this test would take years. It might be given a trial at a large centre, where a series of cases would throw further light on its possible value.

As regards our mortality percentage, our impression is that this might further be reduced by getting patients into hospital earlier. The paragraph on the influence of delay in treatment implies that early treatment is not so important, since recovery occurred in patients not treated for as long as five days. However, these cases were comparatively mild. Since patients were known to recover from meningitis even before *any* type of specific therapy was used, this finding is not surprising. On the other hand, we feel that early treatment in severe and fulminating cases is of particular importance. Our impression regarding reduction of mortality, therefore, applies to these latter types of cases.

In cases 2 and 4, and possibly 6, the problem was obviously one of educating the public to calling a physician on time. Such might be done fairly easily by a little publicity during epidemic times, warning the laity of the presence of the disease in a manner similar to that carried out in recent poliomyelitis outbreaks. It is probably true that a good many useless calls would have to be made by the practitioner but it must be conceded that cases 2 and 4 and possibly 6 might have been diagnosed in time to be properly treated, had a physician been called.

We have also felt that, in some instances, practitioners who do not see meningitis very often might be informed in epidemic times by a circular letter reminding them of the presence of the disease in the community.

Furthermore, the frequent occurrence of prodromal symptoms might provide a further field of investigation. When the incidence of meningococcus meningitis is increased, respiratory symptoms and headaches should be taken more seriously. Studies could perhaps be made to correlate more closely the prodromal manifestations of the disease with some more definite factor, to enable earlier diagnosis to be made. This might prove of special value in fulminating cases.

SUMMARY

1. A comparison of mortality and morbidity statistics of meningococcus meningitis before and after the introduction of chemotherapy demonstrates a sharp fall in mortality since sulphonamides have been used. Mortality in this series of twenty-five cases in hospital was 12 per cent. Treatment consisted almost exclusively of chemotherapy and serum therapy, using polyvalent antimeningococcus serum.

2. The disease in Ottawa and district is apparently not related to the presence of overcrowding or of soldiers.

3. Although serum therapy as an adjunct seemed to have no particular advantage in a number of cases, serum was required in others.

4. The use of drugs other than sulphapyridine seems to have a place in the treatment of meningococcus meningitis.

5. Present routine methods of identifying meningococcus meningitis early are not entirely satisfactory. A substitute method is suggested for further investigation.

6. Earlier diagnosis can perhaps be aided by an educational program among both the public and the profession during epidemic times.

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Acute Anterior Poliomyelitis in Alberta in 1941

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AN account of the experience of Alberta to date (October 1, 1941) in poliomyelitis is being offered in response to inquiries which have been received from other provinces of the Dominion.

During the winter and spring of 1941 an occasional patient presented himself to his physician with a complaint of muscle weakness or paralysis. The "scattered" nature of the muscles affected suggested poliomyelitis, although almost invariably no history of an acute illness previous to the onset of muscle weakness could be obtained. Several cases, reported early in August, were ill during July. The diagnosis in each of these cases was made on the appearance of residual paralysis.

Seasonal Incidence

In common with neighbouring provinces, poliomyelitis appeared here much earlier than usual this year. In Alberta it was a matter of common observation that spring and summer weather arrived about three weeks earlier than usual. The summer was unusually dry, except in the Peace River area, and September was unusually wet and frosty. Flies were most prevalent during late August and early September. Early in August the Provincial Board of Health issued an order prohibiting the congregation in public places of all individuals under eighteen years. Whether or not the unusually early onset of fall, the unusual seasonal incidence of flies, or the Board's order played a part in preventing the large expected incidence in late September, is a matter of conjecture.

During August and September 152 cases were reported. Diagnoses were revised in seven cases: acute rheumatic fever 1, tuberculous meningitis 1, poliomyelitis suspected but not established 2, encephalomyelitis (equine Western strain) 3.

In one's field experience during the past twelve years, occasionally the family physician or the patient's relatives have commented on the existence of concurrent illness in horses on the patient's farm. The signs and symptoms in horses have been described as being "just like the patient's". The observations suggest that perhaps during the present and past years some cases diagnosed as poliomyelitis may have been encephalomyelitis.

Age Incidence

The relatively high incidence of poliomyelitis in the older age groups seems

TABLE I
POLIOMYELITIS AS REPORTED IN ALBERTA
AUGUST AND SEPTEMBER 1941

Aug. 4.....	8 cases	Sept. 1.....	1 cases
" 5.....	2 "	" 2.....	4 "
" 6.....	6 "	" 3.....	6 "
" 7.....	0 "	" 4.....	4 "
" 8.....	1 "	" 5.....	1 "
" 9.....	0 "	" 6.....	1 "
" 10.....	0 "	" 7.....	0 "
" 11.....	4 "	" 8.....	7 "
" 12.....	3 "	" 9.....	6 "
" 13.....	3 "	" 10.....	0 "
" 14.....	2 "	" 11.....	0 "
" 15.....	0 "	" 12.....	2 "
" 16.....	3 "	" 13.....	0 "
" 17.....	0 "	" 14.....	0 "
" 18.....	2 "	" 15.....	7 "
" 19.....	5 "	" 16.....	2 "
" 20.....	5 "	" 17.....	3 "
" 21.....	3 "	" 18.....	1 "
" 22.....	6 "	" 19.....	0 "
" 23.....	3 "	" 20.....	3 "
" 24.....	0 "	" 21.....	0 "
" 25.....	4 "	" 22.....	2 "
" 26.....	4 "	" 23.....	2 "
" 27.....	13 "	" 24.....	0 "
" 28.....	2 "	" 25.....	0 "
" 29.....	7 "	" 26.....	0 "
" 30.....	0 "	" 27.....	0 "
" 31.....	5 "	" 28.....	0 "
Total	91 "	" 29.....	1 "
		" 30.....	0 "
		Oct. 1.....	1 "
		Total	54 "

to confirm the observations made by several during recent years that older individuals appear to contract the disease in a clinically recognizable form more frequently than in the past.

TABLE II
POLIOMYELITIS IN ALBERTA, 1941
DISTRIBUTION ACCORDING TO AGE

Age	Cases	Approximate % of Total	Age	Cases	Approximate % of Total
0-1	4	2.7	25-44	16	11.2
1-4	19	13.2	45-59	5	3.5
5-14	57	39.2	60-69	0	0.0
15-24	43	29.5	70-over	0	0.0
			Not Stated	1	0.7
			Total.....	145	

The youngest patient was two months old; the oldest, fifty-one years. Of the 145 patients, 80 (55 per cent) were males and 65 (45 per cent) females.

Geographical Distribution

In previous epidemics the incidence alternately was greatest either in the

southern part of the province or in the area from Red Deer to Edmonton. During 1941 the cases were scattered generally throughout the province. Only four cases were reported from the Peace River area.

History of Contact

Multiple cases, clinically recognized as poliomyelitis, were reported in five families. At least five individuals contracted their infection outside this province. In about fifty per cent of all cases a history of an "influenza-like" illness in other members of the patient's family was obtained.

Clinical Course

The following observations are based on seventy-nine case histories provided by physicians throughout the province.

Onset. Severe frontal headache was an almost invariable complaint, as was general malaise. Temperatures were usually elevated to about 100°F. A few cases had temperatures as high as 103°F. In fourteen cases there was no history of any systemic disturbance. In eleven cases the onset symptoms were "influenza-like". In fifty-three cases there was a history of onset symptoms referable to the gastrointestinal system (nausea and vomiting; diarrhoea was rare). Seventy of the seventy-nine reported cases evidenced one or more of the signs and symptoms of meningeal involvement.

Spinal fluid examinations were done on sixty-three per cent of the cases. The cell count ranged from 30 to 200. One case was reported with a count of 10,000. Lymphocytes predominated. Increased cerebrospinal fluid pressure was the rule. Increased albumen and globulin content in the cerebrospinal fluid was almost invariable.

About ninety per cent of all cases were hospitalized. Early diagnosis and early hospital treatment were encouraging features of this epidemic.

Sequelae. Thirty-five of the seventy-nine cases reported have not evidenced any residual paralysis to date. Thirty-one have varying degrees of residual paralysis. Three patients have severe generalized paralysis and are now in respirators. Three patients died.

After Care

Under the provisions of the "Poliomyelitis Sufferers' Act", 1938, the Province of Alberta provides orthopaedic care and hospitalization for those suffering from residual paralysis. Younger patients are taught the usual subjects on the public and high school curricula. Older patients may elect to learn trades suited to their physical limitations. All the services are provided without cost to the individual.

The Health of the Worker in Industry in Wartime*

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THERE are different kinds of armies in this war. In one of them active service begins not after a period of training but on the day of enlistment. Twenty-five per cent of its peace-time establishment has important physical defects which are now increased by the absence of fit men eighteen to twenty-five, and by the addition of unemployed, retired and handicapped men and large numbers of women, accepted and placed on a trial-and-error basis. When sickness or accident occurs the gap in the line is left empty or filled by a new recruit until the casualty returns or decides in three or four days that medical care cannot be avoided. There is no sick parade but an accident parade is conducted as the law provides.

An inspector from headquarters makes visits once a month or more often, as time will allow, to ensure that sanitary conditions are maintained and to assist with special health problems should he detect or suspect them, or if they have arrested the attention of the executive so forcibly that they cannot be ignored.

Except for a few units, this is the "industrial army of Canada" as far as the maintenance of physical capacity is concerned. There is work for all to do and for a long-range effort the substantial value of handicapped workers lies almost entirely in adequate placement at work and supervision of health.

All in industry, especially skilled and supervisory forces, have accomplished much more than people realize and in spite of medical problems which in their influence on work are appreciated still less, even within industry. The flesh may at times be weak but the spirit is strong. One large factory displays in a poster, "It's here the great offensive starts."

The increase in industrial accidents in war is attributed to new workers and supervisors, new methods and stress of production, but they have also risen in some industries where these conditions do not obtain. In any case, sickness is ten times as important as far as output loss is concerned, even reaching six per cent of working time. War takes its toll and perhaps it is necessary to pay in terms of public health but it must be emphasized that production is a much more sensitive index of ill-health than is lost time. This is well illustrated in the experience with return to moderate from excessive hours of labour. Many months elapse after sickness absence falls before output is stabilized again at the higher level. The Dominion Government has under consideration a schedule of hours of labour in war industry, limiting men to eleven hours a day or sixty a week and women to fifty-four hours a week, with one day's rest in seven.

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Night work is necessary and is increasing for both men and women. Sickness absence is higher and studies have shown that output is greater in the second week of day work after a spell at night, while it is less in the second week of night work. Such fluctuations in output do not occur with a weekly change of shift but other considerations have led to the frequent adoption of fortnightly changes. Those with gastritis, anaemia and nervous disorders are poor risks. For some reason, those on continuous night work suffer gastric disturbance not attributable to the kind of meal, e.g., miners and bakers. Rotation at work is necessary but the groups referred to require special attention if absence is to be avoided.

The lack of skilled workmen requires the breaking down of complex operations to simpler ones—usually at higher speed and fixed space, out of the control of the worker. Such processes are associated with increased absence on account of sickness and are more likely to employ women. The death rate from tuberculosis in women fifteen to twenty-four in Great Britain increased by fifty per cent during the last war.

The number of cases of occupational disease has increased but up to the present they have come from increased exposure to the common substances in use rather than from new processes. Spraying large surfaces with lead paint, substitution of benzol for toluol, evolution of nitrous fumes in nitration processes and skin irritants, have increased the risk. The inconvenience, discomfort and interference with rest, due to skin irritation from such sources as cutting compounds or plating solutions, warrant expert attention for control.

Such are some of the conditions of work which can be modified or to which some adjustment may be made to maintain health. However, the illnesses to which all, whether inside or outside industry, are subject, remain the most important brake on output. They can be controlled only through their early recognition, and for this the physician must be brought to the worker at the factory as has been done for years by certain progressive industries, requiring no new demonstration of its value. His duties include examination for placement at work and examination afterward as required, the supervision of first-aid and of conditions of work, and education in personal health.

The treatment of accidents, important as it is, instead of monopolizing the attention of such medical staffs as exist in industry, then becomes a part of a program for maintaining health, carried out mainly by part-time personnel with general medical training and experience, and a viewpoint which recognizes the medical problems and needs of industry. Half the lost time from sickness can thus be prevented and hazardous occupations are then under continuous control.

In the bearing of health supervision on industrial relations a 1939 report of the National Industrial Conference Board showed that 43.4 per cent of the industries with medical service regarded it as an "important factor" and another 42.9 per cent as a "definite help" while 13.7 per cent said "no effect" or did not know. The country at large benefits from improved output, the result of good health of its workers, and the force of the example carried home by the breadwinner can hardly be overemphasized.

On the other hand, increased employment of women with home duties, night work, lack of interest and knowledge, offset the advantage that an improved economic state from steady employment contributes to better nutrition. Recent surveys show that malnutrition exists in this country and that family funds are often not used for food to the best advantage. Many industries have suspected as much and have provided food at the factory to "ensure one good meal a day". As with health supervision, the response of employees is immediate.

Housing and transportation engage the attention of medical officers of health, supplementing the federal scheme where it applies. Inadequate rest, communicable diseases and labour turnover due to poor accommodation, react unfavourably upon the community and the work of industry alike.

There is some indication of increasing interest by industrial groups in provision for the treatment of sickness, paid by employer and employee, but without a corresponding interest in the control of sickness except as readily available treatment contributes to this end. As experience of the amount and kinds of sickness in industry and of its cost accumulates, for which the employer makes direct outlay, he will want to know what can be done about it. If public health officials and the medical profession generally, believe, and they do, that adult sickness can be controlled to an appreciable extent by early diagnosis, appropriate advice for treatment, and other measures at their disposal, that belief should be acted upon now, so that war industry may benefit from a procedure which can be so much more readily applied to groups than to individuals outside a group.

Communicable Disease Control in Wartime*

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SINCE time immemorial armies have been confronted with the problem of controlling communicable forms of illness. In the early days of continental warfare most of these were due to some variety of enteric disease. However, history reveals occasions on which other acute and perhaps less defined varieties of communicable disease devastated invading or defending armies.

Presuming on our experience during the last Great War, we found that with the use of typhoid vaccine, the communicable disease control problem in the forces actually, in the field, became largely a matter of environmental sanitation. This was not true, however, of the army during its process of preliminary training, both here and in Great Britain. To those of us who were actively engaged in the public health field at that time, the outbreaks of epidemic meningitis probably loom most significantly in our memories. However, such so-called minor communicable diseases as mumps, measles and chickenpox were serious in terms of the end result and disturbing to the training routine. It is of interest to note, however, that large single outbreaks of diphtheria or scarlet fever were not common.

Today, the situation in respect to communicable disease among the troops in training is changed. Before discussing in any detail those diseases which are presenting with greater-than-anticipated frequency, it would be well to consider those factors which are responsible for the changed situation.

The first of these factors is common to all wars, namely, the bringing together of a large number of young individuals, in varying degrees of susceptibility, into intimate contact with one another, and requiring them to make radical changes in their mode of living.

The second is that during the last twenty years certain desirable immunizing procedures have materially lessened the incidence of certain communicable diseases, thus precluding an opportunity for many of these young adults to acquire an immunity by repeated exposures to small doses of the infective agent. This is particularly true of diphtheria; and I believe the experience which we have already had in this country among troops-in-training, in respect to diphtheria, is of sufficient importance to justify its serious consideration by every public health worker. So important is it that it might rightly form the subject of a paper in itself. Actually, the situation existing today, whereby we have approximately 60 per cent of older adolescents and young adults, particularly those coming from rural and small urban municipalities, susceptible to diphtheria, can only be compared to conditions as they existed in the latter part of the last

*Part of a symposium on public health in wartime presented at the twenty-seventh annual meeting of the Ontario Health Officers Association, held in Toronto, May 22 and 23, 1941.

century. I make this statement advisedly but I am convinced of its accuracy. In our control efforts, we have, in this province, immunized about 40 per cent of those who are now eligible for admission to the armed forces. At the same time, as part of our program, we have cut down the incidence rate of diphtheria to the point where two or three cases in a municipality are viewed with concern. In so doing, we have prevented the possibility of those individuals who have not been immunized securing an acquired immunity by exposure to the disease, and left many of them in a less desirable position than they might have been if no protective measures had been adopted.

The situation in respect to scarlet fever has been equally true in a modified degree.

In dealing with these diseases in some detail, we note that scarlet fever has presented most in the way of difficulty in the matter of control. It would appear that the known disadvantages of concentrating a large number of young adults in one or more single buildings are greater than heretofore appreciated. This has been demonstrated in the outbreaks of scarlet fever which occurred in the Manning Depot of the R.C.A.F., Toronto, and the Air Force Technical Training School at St. Thomas. So evident is it that this single factor plays a large part in the increasing incidence of the disease that one would feel justified in urging consideration of the discontinuance of this practice. However, it must be kept in mind, at the same time, that the group entering the Air Force are, on the whole, considerably younger than those entering the Army and, presumably, the Navy, although in Ontario this last statement is merely presumption; we have had no large experience in this respect.

Camps for trainees were not largely affected by scarlet fever, although considerable in the way of measles occurred in these groups. In the Army proper, the number of cases, in view of the incidence of scarlet fever in the civilian population, was not high. (The recruited men in these camps were largely from Southern Ontario.) In St. Thomas there was a substantial outbreak which flared up and smouldered for a considerable period of time but ultimately lent itself to the control measures adopted. In the Manning Depot, Toronto, the situation remained serious for a period of almost three months, despite the very best efforts of everybody associated with its control.

In attempting to offer some explanation for the rather varied experience in these three more or less comparable sets of circumstances, we find, first, on the whole a somewhat older age group in the Army; second, a rather limited opportunity for exposure in that there is a relatively small number of men gathered together for a varying period of time in the mobilization centre, following which they proceed to the larger training centre, where they are housed in huts with a limited capacity.

In the St. Thomas Training School, we found a larger number of an older age group and accommodation which lends itself more adequately to the sustained segregation of the normal subdivision of a group as large as this happens to be.

In contrast to the above, we find at the Manning Depot 4,000 to 5,000 young adults housed largely in one enormous building, namely, the Coliseum

at the Canadian National Exhibition. Sleeping, eating and recreational facilities are to all intents and purposes under the one roof, with the result that only by the most persistent efforts has the outbreak at the last-named station been brought under control.

The one significant outbreak of diphtheria which has occurred demonstrated two or three things of interest: first, that nearly 60 per cent of a representative sampling of young male adults from Eastern Canada are Schick positive; second, that the clinical picture of diphtheria must be recalled to the older practitioner and vividly impressed on the more recent graduate; and, third, that the free use of preparations of the sulphonamide group locally may be a real factor in masking the laboratory diagnosis of this disease.

The control measures adopted were radical but effective, and required an extraordinary expenditure of time and effort on the part of all those concerned; to say nothing of the effect on the training program.

Meningitis. Despite the fact that meningitis has occurred during the last six months with greater frequency among civilians than ever before in the history of the province, there have been a relatively small number of cases in the Active Service Forces under training in Ontario. A rather peculiar anomaly exists in that, in contrast to the war of 1914-18, at which time the preponderance of cases of cerebrospinal meningitis was in the Army, this time the preponderance of cases is in the civilian population.

It is of interest to note that there has been no serious outbreak of mumps in any of the training schools. In view of the fact that it is thought that not more than 60 per cent of the urban population, and probably 40 per cent of the rural, have mumps during the period of childhood, this can only be explained by the low incidence of mumps through the province.

The incidence of measles, this year, both in America and Great Britain, has reached almost pandemic proportions, and the men in training for war service were not unaffected, although the incidence was not as great as might have been anticipated among the "trainees" from rural areas.

The markedly increased incidence of German measles added to the difficulties of diagnosis in those camps in which this disease was prevalent concurrently with scarlet fever.

Having in mind the very large number of training centres, there has been relatively little venereal disease among the men in training. Most of the credit for this favourable condition must go to the prophylactic measures taken by the officers of the units, and not to the medical officers of health for the municipalities in which the camps are situated. This should not be construed as a criticism by those present who have exerted their best effort to limit the opportunity for exposure to either syphilis or gonorrhea in the area which they serve but I regret to note that in too many cases the control of prostitutes, either professional or amateur, has, if carried out at all, been done with apparent due respect for the social amenities and the so-called "good name" of the community.

In conclusion, I wish to say the responsibility for the control of com-

municable disease in your community is yours and no one else's. Further, that those administratively responsible for the physical well-being of the enlisted men are just as anxious as you are to lessen the incidence of such types of illness in the camp. And, finally, there is little to justify a continuance of any misunderstanding between the local medical officer of health and the camp medical officer as to each other's responsibility, in the face of the manifest desire of the Provincial Department, the Principal Medical Officers and the District Medical Officers to carry out all of the accepted control procedures.

ANNUAL CHRISTMAS SEAL SALE, CANADIAN TUBERCULOSIS ASSOCIATION

AN outward and tangible demonstration of Empire unity in the face of a world danger is the 1941 Christmas Seal campaign to raise funds for the prevention of tuberculosis. The campaign this year is unique in that the seals being used are the same in Canada, the United Kingdom and the colonies of Jamaica and British Guiana.

Because of war conditions, the British National Association for the Prevention of Tuberculosis asked the Canadian Tuberculosis Association to help this year by printing and shipping the many million seals which each autumn are required to fill the demand for these cheery annual messengers of the Christmas spirit of good health. This request the Canadian Association gladly fulfilled, and the seals, in three shipments, all crossed the Atlantic safely, through U-boat infested waters.

The campaign this year is more urgent than ever before. It is a known fact that tuberculosis tends to gain the upper hand in times of war, as grim statistics of death and suffering during the First Great War will bear evidence. Already, in 1941, there are signs in Canada itself that in some parts of the Dominion the disease is making headway. It will demand every effort on the part of health agencies and voluntary organizations to keep tuberculosis in check during these trying times.

Christmas Seals are the only source of revenue for a large part of vitally important anti-tuberculosis work. They provide the means for education by means of literature, films, and lectures. They provide preventive measures, such as school, college and industrial surveys to determine the extent of tuberculosis in a given group of people. They provide clinical and X-ray facilities and public health nursing services that mean so much in making an early diagnosis of the disease.

The Incidence of Trichinosis in Humans in Toronto

Findings in 420 Autopsies

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THE occurrence of *Trichinella spiralis* in North America has been known almost since the organism was first reported in Europe over one hundred years ago. Recent surveys have shown that trichinosis is an important problem in the United States. Sheifley (1) estimates that the incidence of trichinosis in humans in that country is in the neighbourhood of 20 per cent. Sawitz (2) gives the number of clinical cases of trichinosis recorded in the United States since 1842 as between 5,000 and 6,000 and an average incidence as found by post-mortem examinations of 12.34 per cent. Provided the average incidence of post-mortem examinations gives the incidence in the living population, about 16,000,000 people in the United States are infected with *Trichinella spiralis*. Kerr et al (3) summarize the results of various workers of the United States Public Health Service, Washington, D.C. Of 3,000 diaphragms examined, 488, or 16.3 per cent, were found to be positive for trichinosis. Magath (4) suggests that cadavers cannot be considered representative of the living population. They represent persons much older, mainly of foreign origin whose food is often poorly prepared and inferior in quality. The same author states, however, that the reported incidence of trichinosis in the United States is probably much lower than the actual incidence.

The subject of trichinosis in humans in Canada has had almost no attention and therefore it is not known to what extent the results of the surveys in the United States may be applied to the Canadian population. Reports on post-mortem examinations in the Montreal General Hospital (5) have shown that two cases of trichinosis were found in 919 cadavers during the years between 1883 and 1895. Meakins and Gervais (6) reported an outbreak of trichinosis in Montreal, Quebec, in January, 1935. One child died and six other members of the family were ill. Gervais (7) reported another outbreak in Montreal in November 1935 in which 68 people of German extraction were involved. In neither epidemic was the source of infection established. Ceci-lioni (8) reported an outbreak of trichinosis in Hamilton, Ontario, in 1940. In that outbreak 22 definite cases were found that gave a history of having purchased pork sausages from the same source. More persons were involved but showed no apparent ill effect. These reports give little or no evidence of the prevalence of trichinosis in general. Cameron (9, 10, 11) carried out a survey of examination of pork from the various provinces of Canada. His

investigations have a more important bearing on the prevalence of trichinosis in humans, since human infection depends mainly on the infection in pigs. The incidence of trichinosis in 2,995 hogs examined was found to be 0.57 per cent. Williams (12) made a survey of trichinosis in 505 post-mortem examinations in Buffalo. Among these were 12 subjects of Canadian origin. Two males, 67 and 58 years old, were found to be infected with *T. spiralis*. In both cases the infection was mild and showed encapsulated larvae. In one of these the capsules were partly calcified. On the basis of these results and on his own findings Cameron suggests that *Trichinella spiralis* is, no doubt, a common and important parasite here. Clarke (13) examined 78 human diaphragms by the digestion method but in no case were trichinae found.

The present report gives the results of the examination of 420 diaphragms from adults and children during the years 1939 and 1940 in Toronto.

PROCEDURE AND RESULTS

The material for this survey was obtained from the Department of Pathology, University of Toronto, and from the Hospital for Sick Children, Toronto. The Department of Pathology supplied 300 diaphragms, 133 from females and 167 from males. The ages of the subjects ranged from 15 to 87 years. The Hospital for Sick Children supplied 120 diaphragms, 51 from females and 69 from males. These included two premature infants, 9 children less than one day old, and 66 from one day to one year old. The others ranged in age up to 16 years.

The examination was carried out by both the Baermann digestion method and the direct microscopic examination of compressed muscle. The muscle was minced in the meat grinder and digested in a fluid of 0.5 per cent pepsin and 0.7 per cent HCl in water at 37°C. for about 18 to 24 hours. About 20 cc. of fluid was used to digest one gramme of muscle. The amount of the muscle digested varied from 30 to 100 grammes from adults and 1.5 to 50 grammes from children. In most cases about 50 grammes of muscle were digested. The infants' diaphragms, especially those from which only a small sample was obtained, were not minced, but cut in small pieces with scissors. For the direct examination 1 gramme of the minced muscle from adults and 0.5 to 1 gramme from children was examined in the compressor which was made locally in conformity with the specifications set out in the United States Public Health Reports, No. 1929 (14).

Of 420 diaphragms examined, 7 were found to be infected with *Trichinella spiralis*. Six of the positive cases were found among the diaphragms received from the Department of Pathology. The seventh case was from a premature infant in the Hospital for Sick Children.

Table I presents details of the six cases of trichinosis found by the post-mortem examination of 300 adults. The 3 infected males were born in England, the 3 females in Canada. Three of the six diaphragms contained calcified cysts with degenerating or atrophied larvae. The other 3 had live encysted larvae. In 5 subjects the infection was less than one larva per gramme of

muscle; in one case 58 cysts were counted from 50 grammes of muscle. Five cases were diagnosed by both the direct microscopic examination and the digestion method. In one case no larvae were found by the direct examination but their presence was detected by the digestion method. All cases were unrecognized clinically and the case histories showed no suggestive symptoms of trichinosis.

TABLE I

SIX CASES OF TRICHINOSIS FOUND BY THE EXAMINATION OF DIAPHRAGMS OF 300 ADULTS

Sex	Age	Birthplace	Case History	Grammes of Diaphragm Digested	No. of Trichinae Found	State of Trichinae
M	87	England	Pneumonia, myocarditis	47	11	Calcified cysts
M	73	England	Syphilis, pneumonia	60	28	Calcified cysts
M	64	England	Syphilis, pneumonia	50	18	Live encysted larvae
F	77	Canada	Carcinoma	50	58	Live encysted larvae
F	49	Canada	Carcinoma	50	34	Live encysted larvae
F	82	Canada	Pneumonia	62	45	Calcified cysts

The seventh case was found upon examination of the diaphragm of a seven-months'-old foetus. In 6.5 grammes of muscle obtained, 4 live larvae were found. One unencysted larva was found by the direct microscopic examination and 3 were found after the digestion of the muscle. During the time of the examination of the diaphragm the particulars about the child were unknown, otherwise more observations could have been made. The infection was apparently a recent one in which the larvae had been transmitted from the mother to the child. The eosinophile count of the mother, made three weeks later, was 7 per cent. No further suggestive symptoms were disclosed.

Prenatal infection with various species of parasites has been a subject of much interest and has been reported by various authors. The possibility of prenatal trichinosis has been discussed by some of the earlier authors but it is only in recent years that experiments have been done on prenatal trichinosis and positive findings recorded. Roth (15, 16) carried out a series of experiments on prenatal trichinosis. He infected pregnant guinea-pigs and found 9 out of 22 foetuses positive for trichinosis. From one foetus 126 larvae were found. In others the incidence was from 1 to 19 larvae per foetus. Roth found no apparent correlation between the incidence of infection in the mother and the occurrence of trichinae in the foetus. A heavy infection in the mother was not necessary to induce the infection in the foetus; the young of moderately infected mothers were found to carry a relatively heavy infection and vice versa. The stage of pregnancy in which the infection was induced had apparently no influence on the transmission of the parasites from mother to

foetus. Positive results were obtained in the foetus with the infection induced on the first and second as well as the fourth and fifth weeks of pregnancy. Observations of Augustine (17) on a child born of a trichinous mother did not show trichinosis in the child. His experiments with rats, rabbits and swine were also negative. Thus the author concludes that prenatal trichinosis is not possible. Studies of Salzer (18) on an epidemic of 14 cases of trichinosis revealed the presence of *T. spiralis* in the placenta and in another case in the milk of a nursing mother. Hood and Olson (19) made a survey of trichinosis in the Chicago area. Their survey included diaphragms of 48 infants under 1 year of age. Four of these were found to have trichinosis. The above findings suggest that prenatal trichinosis in humans is probably not as uncommon as has been thought until now. The reason that there are no more reports on positive findings in infants may be due to the fact that infants usually have been excluded from post-mortem examinations for trichinosis.

According to the results obtained from the present survey the incidence of trichinosis in humans is quite low. The number of cadavers examined, however, is too small to draw any definite conclusions regarding the Canadian population in general. It is known that even the most elaborate meat inspection regulations do not protect man from infection. It may be that the regulations against the feeding of pigs on uncooked garbage play an important role here. It is highly desirable to make more investigations in other parts of Canada before any conclusive evidence can be obtained on the incidence of trichinosis in the Canadian population in general.

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Tenth Annual Christmas Meeting

LABORATORY SECTION

Royal York Hotel, TORONTO

DECEMBER 17th and 18th

Housing and Sanitary Control in Small Urban and Rural Communities*

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DURING last fall, news items appeared in the daily press dealing with conditions which had arisen in the neighbourhood of new munition plants, because of the sudden movement of workers and their families to these areas. One read of families living in garages, stables and the like owing to lack of other accommodation; and of insanitary conditions following in the wake of this sudden over-population. Apart from the probability that such conditions were contributed to by inadequate control over the use of existing buildings and by overloaded sanitary services, the real cause of such happenings can be traced to the utter lack of consideration often given to the human element in production. While minute and careful investigation is made into the question of buildings for housing equipment, and to the equipment itself, only too often the housing of workers essential for these projects is left to chance. Surely, when a new plant is projected or an existing plant is to be greatly increased in size, the provision of healthful housing for the necessary workers requires as close scrutiny as the works' buildings and machinery, and efforts should be made to see that this necessary housing is provided.

In the news from England, people there are quoted as saying that the wholesale destruction of some of the older areas in the cities is not an unmixed evil; because it will now be possible to plan in a happier way the parts destroyed, and to build better homes for the workers. Over there they have had to struggle hard, and have spent enormous sums of money to overcome the inherited wrongful growth of their towns and cities; and their experience is surely a warning to us to plan and build in a better way. Unfortunately, so far, this lesson has not been learned here, and we continue to travel the same road which led in the past to the objectionable features in the older cities.

Canada is a comparatively young country, which has been found to contain immense natural resources awaiting development. We should expect, therefore, once the present world upheaval is over, that there will be a very rapid development and a consequent great increase in population. It would seem, then, that little time should be lost in improving our equipment for handling the situation, and in correcting the mistakes already made; for in this way much future cost in health and money may be saved.

This paper has been written with the idea of sketching in a general way the extent of the equipment we have at present, and pointing to the manner in which this may be augmented to ensure adequate control in the growth of

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our towns and cities, especially as regards small and new communities, which later may become our new cities and towns.

A cursory examination of our existing cities and large towns will give a rough idea of the various matters which should be taken into consideration in any future control. To begin with, it is generally agreed that most of our large cities, if they had to be started anew, would not be planned as they exist at present. Better facilities for transportation would be provided; the whole area would be zoned from the beginning; natural local beauty spots would be preserved as much as possible; and more open spaces would be left in the more congested areas. All the original faulty grading of streets, which costs so much to correct, would be avoided. The conversion of buildings from one purpose to another without proper supervision would be prevented; and some adequate limits would be set regarding the size of building lots for various purposes and regarding the proportion of any lot which had to be kept free of buildings.

In our towns and cities there have accumulated over the years conditions which were never contemplated when many of the existing buildings were erected. There are buildings which have been encroached on by other buildings, thus shutting out light and air from the older places; buildings which, owing to age, type of construction, or lack of care have become dilapidated; and buildings otherwise unsatisfactory from any health standard. The existence of these points to some need for further powers of correction. In this respect the position here is largely that which existed in Great Britain prior to the enactment of the first Housing and Town Planning Act. That is to say, there is no general standard by which to judge the suitability of buildings for human occupation; nor is there any general information available as to the housing conditions of the poorer sort. That Act set a minimum standard of habitable house for the whole country; and provided for the systematic inspection of all houses below a certain rental; for the recording of the condition of each such house, of the improvements made in it from time to time, and of the official action taken in regard to it. In this way there was, before long, a complete and continuous record of such housing conditions throughout the country; and this record has been of immense value in the many housing projects carried through since. If some such standard were set here, there is little doubt that conditions would be bared in many of our towns which would cry out for correction.

It would appear, then, that the chief faults in our large cities and towns have to do primarily with the lack of early planning, the lack of early and proper building control of existing and new buildings, and with the lateness of fixing grading and building levels. It might be added, also, the lack of early and proper control of plumbing and drainage. Let us see, now, how we stand in these respects in the smaller communities which may later become our large towns. The controlling bodies are the county, township and municipal authorities, and in the unorganized districts of the North, the Provincial Government. The municipal authorities have already control of building through their building and plumbing by-laws, however inadequate these may

be, and reference will be made to them later. In the counties, townships, and northern unorganized districts, however, no control, apart from fire hazards and nuisances, exists at present. So, where the future town starts there is no real control, and it is only after a bad beginning has been made, and the town has grown to a size sufficient to incorporate, that any local control is provided. Generally the greatest damage has been done by that time, as there is no conscious choice of site, and the first buildings usually go up on the future main thoroughfares, which are thus permanently fixed.

The purpose of building and plumbing by-laws is to provide for orderly, safe and healthful buildings and their proper location; and, although this is not usually done, they should provide for better planning of the more closely populated areas, so as to preserve and, if possible, add to the natural beauties. It is not feasible to go into detail in regard to such building and plumbing control, but if one is to judge by results, the following matters would seem to require closer attention:—

1. The zoning of the various areas so that there may be a proper arrangement of the different types of buildings.
2. Planning of the unbuilt areas to provide for the best use of the ground, to allow for proper and sufficient open spaces, and to provide suitable building lots having front and rear access.
3. Restrictions on the proportion of any building lot on which buildings can be erected: so that there may be adequate free air around all buildings, and that these may be designed so as to ensure sufficient light and ventilation to all rooms.
4. Prevention of the approval of buildings where windows are shown in walls abutting on the edge of adjoining lots.
5. Provision that the building plans submitted for approval shall include a general ground plan showing the relationship of the proposed building to those adjoining.
6. Definite minimum requirements regarding the size of living rooms and the free space in front of their windows for light and air.
7. Prevention of the approval of dwelling houses without through ventilation.
8. Restrictions on the placing of lavatory accommodation to ensure direct light and ventilation. In passing, it might be said—as many of you will have observed—that such control is much needed in many restaurants.
9. Provisions regarding fireproof stairways for dwelling houses on upper storeys to avoid the unfortunate loss of life attending many fires in such places.
10. The enforcement, by competent officials, of proper plumbing and drainage by-laws.

The question of the planning of our towns in the early stages, before they have got away to a bad start, is a difficult one which will probably require drastic powers of control. It would seem necessary to have some active added control over all such planning because, generally, such early development takes place before any authority has proper power to control; and be-

cause, except in the case of "company towns", the start generally depends on the enterprise or cupidity of private individuals. In the North, where new developments have taken place, some minor control does exist regarding the planning of new townsites. But this is concerned chiefly with the choice of the site for the town—and is not particular enough at that—and takes practically no cognizance of the layout of the ground in relation to contours: of the proper size of lots and the access thereto; of the provision for open space; and of the preservation of water courses, etc. The promoters of such new townsites are private individuals or corporations whose main effort is towards a quick return on capital outlays. So, naturally, the very most is taken out of the ground area being sub-divided; and, unfortunately, to do this with the best effect it is commonly found that not enough heed is paid to the contours of the ground which will set the grading of future roadways and sanitary services, and little or no provision is made for open spaces. Another fault which this system carries in its train is the lack of control of the building which takes place after lots have been sold. This results in buildings being scattered all over the townsite, some built at the rear of, some at the front of, and some over entire, lots; all at levels set by individual owners. When incorporation comes, the new local authority is faced with expenses for sanitary services so out of proportion to the population as often to render them impossible of realization; and, in addition, the lack of any general building levels renders the satisfactory grading of streets and sidewalks a very difficult job, which may result in the skying of some houses and the partial burial of others. Such uncontrolled building is found, also, on the outskirts of well planned "company towns," where ground owners evade the law by either building and renting houses on their own land, or leasing building lots, all to plans laid down by themselves. The ground owner, who is out to make the most of a parcel of land, cannot be expected to give much thought to the matters involved in proper planning unless he is compelled to do so; and moreover, it often happens, in the case of sub-divisions added to small towns, that the smallness and uneven shape of a parcel of land make it difficult for the owner to have his plan fit in with adjoining developments, or to provide open spaces. Hence we have extraordinary confluences and crossings of streets, which have beside them building lots of very unsatisfactory shape. In the larger cities, areas have been set aside for special purposes and types of building, but no such arrangement is in existence in most small towns; nor is there usually a plan of future development. As stated before, it would seem to be necessary to have some active control over all such planning; and such control should have for its guidance a general minimum of requirements in the choice of sites, in town planning, and in the regulation of the sale of lots and the buildings erected. If no other procedure is feasible, it might be necessary to enable the controlling authority to assume ownership of the area to be planned before any planning or sale of lots is begun. Such an authority could set out the zoning of the area and could ensure a natural growth from the centre outwards. Large expenditures by local authorities in the future would be avoided, and very much better towns would be the result.

What has been said regarding present existing conditions and their correction is applicable to even the smallest of communities; but it will be necessary to extend authority over plumbing and drainage to the local authorities presently without such power, so that this work may be carried out under proper supervision. The many small unorganized communities require, also, to be given the necessary powers to enable them to handle the scavenging of their areas.

This rough sketch of the present situation regarding the orderly planning and development of small and large communities would not be complete without some reference to the tendency of most buildings to outlast their usefulness, and the effect this has on the situation. Ideas change, new inventions come along, and the older buildings—and even whole areas—become outmoded. This is a continuous process in most progressive towns and, unless considerations make it advisable and feasible to demolish and reconstruct the older buildings, these may gradually deteriorate in occupancy until they become a menace to the health of the community. Other buildings which were intended to be of a temporary character in the beginning, and which should have had a maximum life fixed, continue in occupation for many years after their use should have ceased. If to these are added the accumulated mistakes and oversights in planning and building control in our towns, it will be obvious that there is real need to get to work with as little delay as possible to replace the accumulation of out-moded buildings, to plan for the avoidance of such objectionable features in the future, and to regulate the growth of all communities in a good and regular way. For this purpose the indications are that it will be necessary to formulate some system by which proper sites for future towns are selected and planned, and the orderly growth of such towns controlled. Our existing local authorities will require guidance and powers for adequate control over all buildings, whether existing or to be erected, so as to ensure healthful and pleasant living conditions; and it will be necessary to provide the equipment by which present housing conditions may be ascertained, recorded and corrected in relation to fixed standards.

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HEALTH CONDITIONS IN GREAT BRITAIN

PUBLIC health workers on this continent are indebted to the American Public Health Association for the representations made to the authorities in Great Britain that three eminent authorities in public health, Sir Wilson Jameson, Sir John Boyd Orr, and Dr. James M. Mackintosh, might bring to the Association, at its recent meeting in Atlantic City, a picture of conditions in Great Britain and what has been accomplished in safeguarding the health of the nation. It is highly significant and reassuring that the Government permitted Sir Wilson Jameson, Chief Medical Officer of the Ministry of Health, to attend the meeting and to hold a series of conferences with health officials in the United States and Canada. Unfortunately, Sir John Boyd Orr and Dr. Mackintosh were delayed en route and arrived in America too late for the meeting. During Sir John's brief stay on this continent, his international reputation as an authority in nutrition was enhanced by his addresses which revealed the effective application of the most recent knowledge of nutrition to the problems of civilian populations in war-time. Dr. Mackintosh, formerly Chief Medical Officer for Scotland and now Professor of Preventive Medicine in the University of Glasgow, is spending some weeks in visiting university centres in the United States and Canada. From an intimate knowledge of public health in Scotland and England he speaks encouragingly of conditions, without minimizing in any way the tremendous problems that have to be faced.

In the two years of the war there have been no appreciable deterioration of national health, no epidemics of disease, and no increase in neuroses or insanity. It was anticipated that, with so many people crowding into underground shelters, outbreaks of respiratory infections and other communicable diseases would occur. Actually, although pulmonary tuberculosis has shown an increase, there has been no significant rise in the incidence of other communicable diseases. No achievement in protecting the health of the people of Great Britain reflects greater credit on the authorities than the effectiveness with which water supplies have been protected and services maintained, even in the most heavily bombed areas. Chlorination has proved an excellent

safeguard, and neither in London nor elsewhere has there been an outbreak of typhoid fever due to damage to mains and sewers as a result of air raids. The war has enabled the Ministry of Health to make real progress in the immunization of children against diphtheria. Free distribution by the Government of toxoid to all health authorities has provided the essential official support and stimulus for the movement.

It was an immeasurable relief to learn that the threatening danger of malnutrition of last winter has been removed by the greatly improved food reserves which have been established as a result of steps taken on this continent to meet the need. There is no evidence, according to Sir Wilson Jameson and Sir John Boyd Orr, that the British people are suffering in any degree from malnutrition, although the margin of safety has been small. Although food is scarce, rationing affects only meat, bacon, butter, margarine, cheese, tea, sugar, and jam. Equitable distribution of food supplies has been obtained. The introduction of canteens in industrial plants has not proved as satisfactory as was desired; and balanced, complete meals are being provided through proper restaurant facilities installed in an increasing number of factories. In schools also, a regular dinner has been provided during recent months for about 6 per cent of the children, and this is being extended as rapidly as possible. Communal feeding is proving to be of tremendous assistance in ensuring that workers have at least one satisfactory meal a day. Under the National Milk Scheme everyone is required to register for milk. Mothers and infants can obtain a pint a day at a cost of three cents; a school child, two-thirds of a pint daily for two cents.

Hospital provisions are adequate. It was fortunate that England and Wales possessed a large number of hospitals situated outside the larger centres. These hospitals were part of the great system of hospitals which were taken over from the Poor Law Administration in 1929 under the newly created Public Assistance Board. In Scotland many new hospitals have been built since the war in "safe" areas in rural parts, so that a complete hospital scheme is functioning which it is felt is adequate for any emergency. This development of hospital services in Great Britain does not relate to the war only; the Government has announced as a post-war policy its desire "to ensure that, by means of a comprehensive hospital service, appropriate treatment shall be readily available to every person in need of it."

Those who have had the privilege of hearing these leaders were impressed not only by the modest way in which the achievements were outlined but also by the quiet confidence of the speakers. There was no tendency to underestimate the gravity of the situation, nor to give any impression that they were doing more than to grapple, with all their courage and strength, with the tremendous problems that face them. Such a visit from those in public health work who are facing the war in all its reality is of inestimable value to us. It is hoped that this may be the forerunner of visits by other leaders and that there may be an interchange of visits so that any contributions which can be made by leaders on this continent may be facilitated in every way.

THE 1941 EXAMINATIONS FOR THE CERTIFICATE IN SANITARY INSPECTION (Canada)

THE annual examinations for the Certificate in Sanitary Inspection (Canada), granted by the Canadian Public Health Association, were held in six provincial centres on September 10th, 11th and 12th. Forty-one candidates completed the requirements of the Committee as relating to secondary-school education and field training in sanitary inspection. Thirty-four passed in all the subjects of the examination; four were conditioned in one subject and will have to rewrite it at a subsequent examination before the certificate can be granted; and three failed, having obtained less than the pass mark in two subjects.

Centre	Candidates	Passed	Con- ditioned	Failed
Vancouver	9	9	—	—
Edmonton	2	1	1	—
Regina	5	2	1	2
Winnipeg	4	4	—	—
Toronto	6	6	—	—
Montreal	15	12	2	1
	41	34	4	3

The successful candidates and those conditioned in one subject are as follows:

British Columbia: Frederick Raymond Alcock, Vancouver; Morven Ewan, New Westminster; Ellis Eric Ford, Vancouver; Ernest J. Kidson, Penticton; Angus Donald Mackie, Vancouver; John Fordham Murrell, Vancouver; Claude Randall Stonehouse, North Vancouver; Russell Irvine Stringer, Vancouver; and William Stanley Wookey, Vancouver.

Alberta: Lloyd G. Alexander, Edmonton (Food Control); and Robert Boyd Meredith, Grande Prairie.

Saskatchewan: John Harold MacRae, Prince Albert; Walter J. Pym, Regina (Sanitation); and Milford A. Welsh, Swift Current.

Manitoba: John Stephen Carmichael, Winnipeg; Howard Daniels, Winnipeg; Hugh John Johnston, Win-

nipeg; and I. Rose-Christensen, Winnipeg.

Ontario: William Clarence Boyd, Todmorden; Dalton M. Disher, St. Catharines; Harry Drew, Windsor; Joseph Lionel Griffith, Toronto; Murray Charles Nixon, Toronto; and John Reginald Paddon, Vancouver, B.C.

Quebec: Wilfrid Bastien, Montreal; François-Joseph Belleau, Montreal; Albert Bouchard, Montreal; Armand Boucher, Montreal; Paul Boucher, Montreal; Philippe Desalliers, Montreal; Bertrand Forget, Montreal; Paul Gaudet, Montreal; Roland Lafond, Montreal (Communicable Diseases); Georges Lambert, Granby (Communicable Diseases); Charles André Lemioux, Montreal; Charles Moreau, St. Anselme; Joseph Odilon Rancourt, Montreal; and Joseph B. Veilleux, Beauceville.

As in past years, the responsibility for the conduct of the examinations was left with the Provincial Departments of Health, the deputy minister of which appointed the chairman of the provincial examining board. The second member of the board was chosen by the chairman, and the third member was nominated by the Canadian Institute of Sanitary Inspectors. The Committee on the Certification of Sanitary Inspectors gratefully acknowledges the co-operation of the following members:

British Columbia: Dr. J. S. Kitching, who served as chairman in the absence of Dr. Stewart Murray; Mr. R. M. Martin, C.E., and Mr. Reginald Startup, C.S.I.(C.).

Alberta: Mr. D. B. Menzies, C.E., chairman; Dr. G. M. Little, and Mr. J. Butterfield.

Saskatchewan: Mr. J. G. Schaeffer, B.Sc., chairman; Dr. G. R. Walton, and Mr. M. H. Kennedy, C.S.I.(C.).

Manitoba: Dr. Maxwell Bowman, who served as chairman in the absence

of Dr. C. R. Donovan; Mr. W. D. Hurst, and Mr. James Arkle.

Ontario: Dr. J. G. Cunningham, chairman; Dr. A. R. B. Richmond, and Mr. Hugh McIntyre, C.S.I.(C.).

Quebec: Mr. Théo. J. Lafrenière, C.E., chairman; Dr. Ad. Groulx, and Mr. Aimé Cousineau, C.E. The Committee is grateful also to Dr. A. J. G. Hood for assistance with the oral examinations.

The examination papers in the three written subjects were as follows:

SANITATION

(Thursday afternoon, September 11th)
Time: 3 hours

1. (a) Define the following terms: soil pipe, waste pipe, house drain, cross-connection.

(b) Explain the purpose of a trap on a plumbing fixture and its functioning. How may back-syphonage occur?

2. (a) What is chlorine? How does chlorine disinfect water?

(b) Describe a practical method for chlorinating small quantities of water in a camp.

(c) Describe a convenient test to demonstrate that sufficient chlorine is present.

(d) What bacteriological tests are usually made of a sample of water?

3. A municipality of 5000 desires to provide a system of collection and disposal of garbage and refuse. Outline:

(a) Requirements which you would make of the householder.

(b) System of collection.

(c) Method of disposal — including proper operation to prevent nuisances.

4. You are asked to plan a septic-tank installation in a rural residence of eight rooms. The soil is clay. With the aid of a sketch, describe the installation, including the capacity and other measurements pertinent to the installation.

5. With the aid of a sketch, outline a plan for a camp accommodating fifty men, giving consideration to the selection of the site, the layout of the buildings, and provisions for water supply and disposal of sewage.

6. (a) Define "overcrowding" as relating to housing.

(b) Outline the regulations in your Province governing barber shops.

(c) Name three occupational diseases and describe the methods of prevention of one of these.

FOOD CONTROL AND LEGISLATION

(Friday morning, September 12th)
Time: 3 hours

1. (a) What is the cause of food decomposition?

(b) By what methods are foods preserved? Explain how each method preserves food.

(c) How may decomposition be recognized in food?

(d) How would you decide if fish are fresh?

2. (a) Food contains fats, carbohydrates, and protein. What is the function of each of these in meeting the needs of the human body?

(b) What other essential elements in food are required for health?

(c) Why is milk of great value as food?

3. (a) Describe the method of canning vegetables commercially.

(b) What is trichinosis? How is this disease transmitted and how may it be prevented?

(c) Outline a practical method for the control of cockroaches in a bakery.

4. Bacterial counts of samples of pasteurized milk from a dairy varied from 300 to 800,000 during a week in mid-summer. Outline the inspection of this plant which you would make. What conditions would account for this situation?

5. (a) Describe the method of preparation of cheddar cheese.

(b) How can the preparation of cheddar cheese be safeguarded from the sanitary standpoint?

(c) What recommendations would you make in regard to the marketing of all cheddar cheese in view of the occurrence of several outbreaks of typhoid fever associated with the consumption of cheese?

6. (a) Define the terms "Canada Approved", "Rejected", "Held", and "Condemned", as relating to meat inspection in Canada.

(b) For what conditions are carcasses condemned?

(c) What is the extent of bovine tuberculosis in Canada? Outline the methods which are being employed to eradicate bovine tuberculosis.

PREVENTION AND CONTROL OF COMMUNICABLE DISEASES AND RELATED SUBJECTS

(Friday afternoon, September 12th)
Time: 3 hours

1. (a) Name the notifiable diseases for which placarding is required in your Province.

(b) Give the quarantine and isolation periods for any four of these diseases.

2. What do the regulations for the control of communicable diseases require, in your Province, as relating to:

(a) A child suffering from scarlet fever whose parents operate a dairy.

(b) A man suffering from smallpox in a lumber camp.

(c) A man with tubercle bacilli in his sputum and in an advanced stage of tuberculosis who is living at home with his wife and three young children.

3. (a) What diseases may be transmitted:

By water?

By milk?

By insects?

Through soil?

(b) Define the term "carrier". How may carriers be classified? Name two diseases in which carriers are important and indicate clearly how the transmission of the disease may occur.

4. What procedure would you follow in releasing from isolation a patient who has been treated at home, following scarlet fever?

5. (a) Describe the disinfection of stools from a typhoid fever patient.

(b) What is the method for protecting a child against diphtheria by immunization?

(c) Explain the term "infant mortality rate".

(d) How is a "nuisance" defined in the Public Health Act of your Province?

Since the introduction of the examinations in 1935, the Certificate has been granted to two hundred and thirty-seven candidates.

The members of the Committee on the Certification of Sanitary Inspectors are very much pleased with the standing obtained by the candidates this year. The written papers were in general of high quality and indicated conscientious preparation for the examinations. On September 1st the regulations governing secondary-school education were amended to require the successful completion of four years of high school or its equivalent. This will ensure that those qualifying in sanitary inspection will have a more adequate background and will be better equipped to acquire the basic knowledge and to apply it effectively.

THE HARBEN LECTURES FOR 1941

PROFESSOR E. V. MCCOLLUM, of the School of Hygiene and Public Health of the Johns Hopkins University, will deliver the Harben Lectures of the Royal Institute of Public Health and Hygiene, of London, England, for the year 1941. Owing to war conditions, the University of Toronto has been designated for the delivery of the lectures, which will be given on December 1, 2 and 3. The subjects of the lectures are: "Nutritional Science and Public Health":

1. Inorganic elements which present nutrition problems of practical importance.

2. Problems presented by the availability of low-cost synthetic vitamins—enrichment, fortification and restoration of refined foods.

3. Nutrition problems presented by low-income families.

BOOKS AND REPORTS

The Graduate Nurse in the Home.

By Mary L. Habel and Hazel D. Milton. Montreal: J. B. Lippincott Company, 1941. 290 pages, 57 illustrations. \$2.75.

THIS book was written as a result of complaints that many nurses are reluctant to take cases in homes where nursing conditions are often far from ideal. The authors attempt to show the adaptations which should be made in typical cases.

In caring for the patient in the home it is so often the little things that contribute to the patient's comfort. These are pointed out, simply and logically.

The treatment of diabetic cases should be most valuable to nurses who have not been in contact with this condition for some time. The text explains the tests, diet, etc., in the most explicit manner.

This work should make interesting reading for not only the private-duty nurse, but also the public health and the senior student nurse.

B. E. Freestone

Borrowed Children. By Mrs. St. Loe Strachey, with a foreword by Amabel Williams-Ellis. London: John Murray. Canadian Agent: The Musson Company, Toronto. Also published by The Commonwealth Fund, New York. 149 pages. 75c.

"THE children were hot, dirty and tired.

"'Baths and bed'," cried I. Then there arose a united shout: 'But we haven't had our tea!'"

Thus is pictured the scene when children evacuated from London reach the distribution centre from which they are to be placed in billets "for the duration."

BORROWED CHILDREN presents a picture of the mental and physical turmoil through which children pass when all they have known of security and stability is suddenly uprooted and they are faced with the problem of making new adjustments.

While, on the whole, there was "quite extraordinary success," it is inevitable that there should be a number of problems. These problems are narrated at some length in the hand-book portion of this interesting and readable book. How they were dealt with is also portrayed.

Many calls were made upon the mental health organization. The Central Association for Mental Hygiene, the Child Guidance Council, the National Council for Mental Hygiene, the Association of Mental Health Workers and the Association of Psychiatric Social Workers banded together to pool their resources.

The studies portrayed present a strong argument for the use of mental health clinics in the work of child placing. The services these clinics are able to give, however, are shown to depend, in a large measure, on the assistance of the professional social worker and in outlining a "basis of sound advice to everyone concerned with evacuated children," it is recommended among other things that "professional social workers should be appointed."

The hand-book is one that should prove of interest to all mental health workers and social workers who are interested in the placement of children in foster homes. To those who have had experience with the children who came to Canada for placement, it will prove to be invaluable.

B. W. Heise

CURRENT HEALTH LITERATURE

These abstracts are intended to direct attention to articles that have appeared in other journals during the past month. Any of the journals referred to may be borrowed for three days or longer if desired. Address requests to the secretary of the Editorial Board.

Treatment of Bacillary Dysentery with M. & B. 693

INTERESTING results of the treatment of bacillary dysentery with M. & B. 693 are recorded in this article. The outbreak, which occurred in a mental institution, was limited to 16 cases. The majority of these were due to *B. dysenteriae Flexner* and were severe in nature while the remainder, due to *B. dysenteriae Sonne*, were mild. Administration of M. & B. 693 had an immediate effect on pyrexia, temperatures returning to normal in 24-48 hours. Symptoms disappeared in 36-72 hours. Of two patients who did not receive the drug one was ill for two weeks and the second died in five days. Dysentery bacilli were never found in any specimens taken for examination later than 36 hours after the beginning of treatment with the drug.

G. J. Bell, *The Lancet*, July 26, 1941, p. 101.

The Epidemiology of Rheumatic Fever

SOME of the well-known and not so well-known facts concerning rheumatic fever are brought together in this article. Morbidity and mortality statistics collected from a number of different sources appear to place it as the third most common chronic infection in our temperate climate. The unsolved question of etiology is dismissed briefly, attention being called to the probable association of *Streptococcus hemolyticus* in some way. Geographic and climatologic influences are examined and cold weather, damp weather and crowding together indoors emerge as the only factors of importance. These may be of significance only in so far as the incidence of upper respiratory infection is increased under these conditions. Rosenau pointed out that a good

year for streptococcus disease was a good year for rheumatic fever. Since the incidence is definitely greater in urban than rural populations the term "crowd disease" is probably justified. Poverty and slums are connected with the incidence of the disease possibly through such factors as malnutrition, overcrowding and poor ventilation. A familial tendency is apparent in that the children of rheumatic parents have higher attack rates than the children of non-rheumatic parents. The explanation of this is not clear but "the family approach exists as an opening wedge in the field of prevention", in this respect bearing a close analogy to tuberculosis.

John R. Paul, *Am. J. Pub. Health*, 1941, 31: 611.

The Treatment of Pneumococcic Pneumonia with Sulfadiazine

THIS report confirms the clinical and experimental observations of various workers as to the efficacy and advantages of sulfadiazine in the treatment of pneumococcic pneumonia. Thorough investigation of the cases was carried out, including typing of the sputum for pneumococci, roentgenograms of chest, blood cultures and blood estimations of drug level. Of the 115 patients treated with the drug 13 died, a case fatality rate of 11.3 per cent. Among 17 patients with positive blood cultures there were 5 deaths (29.4 per cent). Early administration of the drug was a great advantage, as shown by a case fatality rate of 6.3 per cent among those receiving the drug in the first four days and 17.4 per cent among those whose treatment commenced later than this. The mortality rate increased in direct proportion to age.

Sulfadiazine was readily absorbed from the gastro-intestinal tract and produced higher blood levels than similar doses of sulfathiazole and sulfapyridine. Toxic effects were minimal. Vomiting, never severe

enough to interfere with oral administration, occurred in only 4.4 per cent of the patients. Other toxic effects were mild and transitory. It was therefore felt that sulfadiazine, in view of a comparable therapeutic efficiency, was superior to other drugs in the treatment of pneumococcic pneumonia.

Harry F. Dowling and others, J.A.M.A., 1941, 117: 824.

Further Observations on Penicillin

PENICILLIN is a growth product of the mould *Penicillium natatum* which has been shown to possess remarkable chemotherapeutic properties. In this paper by the team of Oxford investigators the whole problem of production, assay and action is discussed. The active principle has been obtained in liquid and powder form and methods of small-scale mass production worked out. The bacteriostatic activity of penicillin appears to be selective for gram-positive organisms. Extremely low concentrations, 1 in 1-2 million, prevented the growth of *staphylococcus*, *streptococcus pyogenes*, and the anthrax and Welch bacilli. The purified product is devoid of significant toxicity and does not interfere with the activity of leucocytes which is essential since the substance is bacteriostatic, not bactericidal. Pus, serum and protein autolysates did not interfere with its action. Clinical trial has been limited because of the small amounts of material available but in a small number of cases produced very favourable results.

E. P. Abraham and others, *Lancet*, 1941, 241: 177.

Study of Efficacy of a Complex Vaccine against Influenza A

THE vaccine used in this study consisted of a mixture of influenza A virus and a canine distemper virus inactivated by formalin. This vaccine was administered as a single 1.0 cc. dose to 7,907 volunteers in institutions, the remaining 9,688 persons serving as controls. Serum was obtained prior and subsequent to

vaccination for neutralization and complement fixation tests. Four months later an epidemic of influenza occurred and serum was obtained from as many control and vaccinated individuals as possible. From cases it was obtained during the acute and convalescent periods. These latter sera were used to determine the types of influenza virus active in the epidemic.

This extensive undertaking showed that the complex vaccine stimulated the production of antibodies against influenza A virus but not against influenza B virus, which was not represented in the vaccine. The extent to which antibodies were increased following vaccination bore a direct relationship to the prevention of influenza A, though there were individual exceptions. In all, the incidence of influenza A was 50 per cent lower in the vaccinated group than in the control group while influenza of unknown cause occurred with practically equal frequency in the two groups.

F. L. Horsfall, Jr., and others, *Pub. Health Rep.*, 1941, 56: 1863.

Weil's Disease—A Report of 51 Cases Occurring in Puerto Rico and the United States

THE first reported case of Weil's disease occurred in New Orleans in 1905. Since that time 27 fully described cases and 20 presumptive cases have been reported from eleven states and the District of Columbia. The great majority occurred in adult males whose occupation in most instances accounted for sufficient exposure to infection.

A further 51 cases, previously unreported, are discussed. Seven of these did not have jaundice but were positive serologically. The number of states now represented is raised from 11 to 14. A significant finding is that the discovery of a case or cases in any locality increases the reporting of the disease, indicating a keener awareness among physicians.

Carl L. Larson, *U.S. Pub. Health Rep.*, 1941, 56: 1650.

